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Affective and cognitive bases of attitudes toward environmental issues

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AFFECTIVE AND COGNITIVE BASES OF ATTITUDES TOWARD ENVIRONMENTAL ISSUES

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Abstract

This present study seeks to determine the bases of our attitudes toward environmental issues. Is it what we think and believe (cognition) about the environment that determines our attitudes or is it what we feel (affect) that informs us. Previous literature indicates that in some areas affect may be a better predictor of attitudes than cognition. Furthermore the environmental education literature suggests that affect may be a key entry point for environmental education Using Zanna & Rempel's (1988) attitude structure model, the present study seeks to replicate and extend the work of Eagly, Mladinic and Otto (1994) using a free response method to elicit beliefs and affects to three environmental issues. Sixty six participants (N=66) were asked to rate their attitudes, and elicit their own beliefs and emotions about the environmental issues. Results from standard regression analyses confirmed that beliefs and affects significantly predicted attitudes toward logging of native forests, emotions predicted attitudes toward restriction of vehicle emissions and beliefs predicted attitudes toward urban development. Hierarchial regression results indicate that even after taking into account the role of cognition, affect significantly contributes to the amount of variance explained in attitudes toward the restriction of vehicle emissions and the logging of native forests. The

results indicate that attitudes can be differentially predicted from beliefs and affects and that overall affect and beliefs play an equally important role in the prediction of attitudes toward environmental issues. Directions for future research are highlighted and discussed in light of the specific results obtained by the present study.

Declaration

" I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text".

Signature_____

Date_____

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CHAPTER 1

The Environmental Issue

1.1 Rationale

Education campaigns have been used extensively in many areas such as health and safety. Their main objective has been to achieve a change in an individuals behavior in relation to a certain issue. It is generally assumed that changing attitudes will lead to the required change in behavior (Kraus, 1995). Environmental education campaigns adhere to this approach, focusing on changing environmental attitudes to produce a change in environmental behavior. In order to develop more effective environmental education campaigns we need to take a closer look at attitudes toward environmental issues. Not withstanding the problem of the relationship of attitudes to behavior there is also a problem with the way in which attitudes has been conceptualized, and used interchangeably with other concepts like environmental concern.

Attitude as presented here refers to a "psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour" (Eagly & Chaiken, 1993: 1). Attitudes are thought

to be based on different sources of information, cognitive (beliefs), affective (feelings) and behavioral (experience). Much of the information that has been provided to construct environmental education campaigns has emphasised the cognitive component as the determinant of environmental attitudes, attitude change and behavioral change (Iozzi, 1989a,b). However, there is some evidence to suggest that affect is an important component of a person's interaction with the environment and, further, is an information source for determining attitudes (Ulrich, 1983 ; Abelson, Kinder, Peters & Fiske, 1982; Iozzi, 1989a,b). This thesis examines the role of cognition and affect in the prediction of attitudes toward three different environmental issues.

1.1 The Ecological Crisis

Whilst many new methods, such as reduction of pollution and treating water systems have contributed to a cleaner environment, there is growing recognition that technology alone cannot and will not solve our world's environmental problems (Newhouse, 1990). Maloney and Ward (1973) argued that this "ecological crisis" is not a crisis to do with technology alone but a crisis of maladaptive behavior. They further stated that this ecological crisis is best thought of as an issue to do with people, it is about populations, about consumption and about demand. This places the onus of finding solutions to environmental

problems within the resolve of psychology (Maloney, Ward & Braucht, 1975).

Maloney and Ward (1973) further argued that it is psychology's responsibility to address this ecological crisis as it is within the discipline of psychology that behavior can be readily identified and studied. They also recognised that before one can intervene, one needs to understand present behavior, what people already know, what they feel, what they are willing to do and what they currently do, in relation to the environment. In essence, we need to understand our interaction with the environment if we are to effect change.

Environmental research carried out by behavioral researchers over the past few decades has shaped our understanding of the interactions that humankind has had with the environment. The conceptualisation of humankind's interaction with the environment has been most directly focused on environmental concern (Geller and Lasley, 1985).

1.3 Environmental Concern Studies

Dunlap & Van Liere (1978) supported the idea that if we are to do anything about changing the way in which individuals interact with the environment then we must understand, and research, the extent to which individuals are concerned about the environment.

Environmental concern studies emerged toward the end of the 1960's. In 1970, an Earth Summit was held which reinforced the concept of environmental concern as an impending global issue. Many authors (Van Liere & Dunlap,1978; Weigel and Weigel, 1978; Buttel & Flinn, 1977) subsequently tried to define the concept environmental concern. The framework developed by Dunlap and Van Liere (1978, 1984) became very influential in that many other authors (Albrecht, Bultena, Hoiberg, & Nowark, 1982; Arcury, 1990; Geller & Lasley, 1985; Noe & Snow, 1990a, 1990b) have utilised the scale that they developed, the New Environmental Paradigm (NEP). This scale (NEP) has developed considerable empirical support and has been utilised with many different samples including Pennsylvanian residents (Scott & Willits, 1994); business students (Sheltzer, Stackman & Moore, 1991); rural - urban samples (Acury & Christianson, 1993); and Hispanics (Noe & Snow, 1990) to validate it as a measure of environmental concern. The NEP contains twelve items designed to measure 'a new worldview' (Dunlap & Van Liere, 1978:10) which centres around the ideas of 'man over nature', 'limits to growth' and 'nature for human consumption' .

Dunlap and Van Liere (1978) reported that the NEP is a unidimensional measure of environmental concern, although a study by Albrecht, Bultena, Hoiberg and Nowark (1982) challenged this finding,

with their results indicating a three factor solution resembling Dunlap and Van Liere's (1978) new worldview ideas, the 'balance of nature', 'limits to growth' and 'man over nature'. Recent findings using the scale (Scott & Willits, 1994; Sheltzer, Stackman & Moore, 1991; Acury & Christianson, 1993; and Noe & Snow, 1990a) also support the three dimensional approach, and thus suggest that environmental concern is not unidimensional.

Weigel and Weigel (1978), also recognised the multidimentionality of concern and argued that there would be much value in developing an environmental attitude scale that assesses one's beliefs, feelings and actions toward environmental concerns. They went on to develop the Environmental Concern Scale (ECS) which consists of sixteen items rated on a five point likert scale. The ECS is considered to be a general measure of conservation and pollution issues. Gray, Borden & Weigal (1985) reports that the ECS has little competition as its "psychometric (Cronbach's alpha = .85) properties' (p. 76) are of a high standard when compared to other scales. The ECS is also easily obtained and therefore, has been utilised in many different studies. A substantial amount of empirical support for its unidimensionality has resulted in the ECS being regarded as one of the best measures of general environmental concern.

In 1981, Van Liere and Dunlap highlighted problems with defining and measuring environmental concern. They argued that while concern studies were popular there is some question as to what environmental concern is measuring. In Van Liere and Dunlap's (1981) study a comparison was attempted between concern scales that were derived from different substantive areas (population, pollution and natural resources) and scales measuring different theoretical conceptualisations of concern (Government regulation, governmental spending, and an environmental behaviour scale). All were measured using likert scales to aid the comparisons. Correlational results indicated that population concern was different to concern for natural resources and pollution. Support for government regulations, spending and behaviour were all related as long as they pertained to pollution and natural resources. Van Liere and Dunlap (1981) concluded that environmental concern is a broad concept and one that is best represented by concern about pollution and natural resources.

In trying to define environmental concern it becomes obvious that it means different things to different researchers. Some researchers refer to concern as a person's attitude (Lyons & Breakwell, 1994; Buttel & Flinn, 1978), while others refer to concern as a reaction (Axelrod & Lehman, 1993). Many researchers do not try to define the

concept, but try to indicate its meaning through how it is measured (Tognacci, Weigel, Wideen & Vernon, 1972).

Within the environmental literature, this has inevitably led to comparability problems as different researchers have different assumptions regarding the expression of environmental concern (i.e. perceived seriousness, support for government spending, knowledge of problems and actual involvement) (Van Liere & Dunlap,1981). As a result the understanding of the meaning of concern, the comparison of different studies results, and the establishment of generalisations about relationships between concern and other variables, have been impossible.

More recently, Reser, Bentrupperbaumer and Bragg (1996) have challenged our understanding of the environmental concern concept. Reser (1995a) argues that environmental concern relates most closely to a response to risk (a behaviour) and is not an opinion, knowledge, awareness, or an attitude. We place a value on whatever is at risk, and this translates to concern. He also argues that we do not have a clear model or measurement tool for environmental concern. Little effort has focused on disentangling environmental concern from concepts such as environmental knowledge, awareness, consciousness, motivation, values and attitudes. Environmental concern, Reser (1995a) argues, has been studied with little methodological and intellectual rigour.

Much of the concern literature emphasised attitudes and attitude change as its main focus and Reser (1995a) indicates that, within psychology, attitude and behaviour studies based on clear frameworks, provide ways of thinking and researching in the environmental domain. Environmental concern is a central concept in the environmental literature, however, there are inherent problems with the ambiguity of the term environmental concern and the models in which it has been operationalized. At the present time, psychology's consideration of the attitude concept provides a clearer foundation for frameworks and models in which the environmental arena may be studied.

1.4 Environmental Attitude Studies

Studies directly examining attitudes have, like concern studies, measured different things. Some have examined specific substantive areas like conservation of energy (Olsen, 1981), and conservation of the environment (Wood, 1982). Others have looked specifically at the attitude-behaviour link in relation to specific domains, like conservation behaviour (Costanzo, Archer, Aronson and Pettigrew, 1986). Many studies have examined specific populations and their environmental attitudes. Sewell (1971) studied engineers' and public health officials' environmental attitudes, Stahl (1993) studied Oriental Jews' global environmental attitudes and Thompson and Gasteiger (1981) compared

university students' environmental attitudes from 1971 to 1981. All of these studies are descriptive in nature.

A further group of studies examined the relationship between attitudes and personality variables or sociodemographic variables like political ideology (Butter and Flinn, 1978); education (Buttel and Flinn, 1974); age , gender, and income (Van Liere and Dunlap, 1980); education, age, income and political ideology (Ostman & Parker, 1987; Samdahl & Robertson, 1989) resulting in different sociodemographic variables being related to environmental attitudes in different contexts.

Although there have been many studies addressing environmental attitudes, there is little consistency in terms of how attitudes have been defined and, thus, measured. For example, Scott and Willits (1994) studied environmental attitudes of Pennsylvanians using the NEP as a measure of attitudes. As discussed earlier, the NEP consists of 12 statements that represent a proenvironmental worldview. The NEP is said to provide insight into the basic values and beliefs on which environmental attitudes are based, but there is an assumption that environmental attitudes are based on values and beliefs whereas the exact nature of environmental attitudes is unclear. The twelve statements seem to represent a general environmental philosophy, and thus Scott and Willits (1994) findings are confounded by their reliance on the NEP as a measure of attitude.

Other researchers, such as Buttel and Flinn (1978), in devising items relevant to political ideology and environmental attitudes, used belief statements measured on a likert scale (eg industry should be able to handle pollution in its own way). One could argue that this statement is in fact an attitude item, because of its evaluative nature, rather than a belief statement. Armstrong and Impara (1991), on the other hand, described attitudes as knowledge, and then proceeded to measure belief and affects in their study of environmental education programs. They asked questions such as How do you feel about endangered species?. When the body of research is examined it becomes clear is that attitudes are being differentially defined and measured in different studies. Therefore, it could be argued that environmental attitudes could share similar problems to environmental concern in that, they frequently are used interchangably with concepts such as beliefs, awareness, knowledge, values are often interchanged with attitude (Scott & Willits, 1994; Shultz and Stone, 1994). A consistent model and a clear definition of attitude is necessary to provide a foundation for environmnetal attitude research.

One last observation that is pertinent to these studies is the superficiality of the use of the attitude concept. Environmnetal studies focused more on the domain/context of the study than on the framework/model or measurement technique used. Following Stern

and Oskamp's (1987) argument that environmental attitude studies lack a clear theoretical framework, it could also be argued that there is a lack of methodological understanding and application of attitude models to the environmental studies.

Maloney and Ward (1973), on the other hand, provided an example of an environmental study based within an attitude framework. They developed their Ecology scale, or Ecological attitudes and knowledge scale, with the idea that one needs to determine the antecedents of environmentally relevant behaviours. Maloney and Ward (1973) argued that the antecedents of environmentally relevant behaviours are what an individual knows, feels and does, that is, his or her cognitions, emotions and behaviours. This particular study was based upon the tripartite classification model of attitudes developed by Rosenberg and Hovland (1960) (See Figure 2.1 on page 36). One hundred and twenty six participants were asked questions based upon the four categories of knowledge, affect, actual commitment and verbal commitment. Subscales were then developed using factor analytic methods and a final scale containing four subscales with 130 items was produced. A subsequent study by Maloney, Ward, and Braucht (1975) reduced the number of items to 45 across the same four subscales. Both the long and short version of these scales are referred to as a scale for the measurement of ecological attitudes and knowledge.

The scale's items centred around population control, pollution, and general ecological issues. Using the scales, differences were found between sierra club members (an environmental group), student, and non-student samples. The sierra club members scored higher on all scales (cognition, affect and behaviour), and knowledge was not found to relate to any other scale for any of the groups. This study provided the basis for other studies looking at the tripartite components in the environmental domain.

Gray (1985) cites a study by Amelang, Tepe, Vagt and Wendt (1977) that replicated (with German participants) and confirmed the Maloney and Ward (1973) three factor (tripartite) model. The study used the long version (126 items). Other researchers have utilised the Maloney and Ward (1973) and Maloney et al (1975) scale. For example, Arbuthnot and Lingg (1975) compared French and American populations and Smythe and Brooke (1980) studied a Canadian population.

Later Schahn and Holzer (1990) utilised the component model, on which Maloney and Ward's (1973) scale was based to develop their own scale. Schahn and Holzer (1990) developed items appropriate to water conservation, political involvement in the environment, environmentally aware purchasing, waste reduction, protection from toxic substances, and conservation of energy, within each of the

tripartite components, affect, knowledge, commitment, (verbal and actual). Each of the scales, apart from knowledge which utilised a multiple choice format, were rated on a 7-point Likert scale. Two samples were used, an environmental group (N=105) and a general sample (N=167). It was found that the environmentalists had significantly higher mean scores, thus indicating a higher concern for the environment. Consistent with Maloney et al. (1975), knowledge was found not to be significantly related to any other scale. It is also important to note that even though Schahn and Holzer (1990) clearly utilised a component model of attitudes they still report attitude as being synonymous with environmental concern.

Other studies have tested knowledge as the cognitive component from the Rosenberg and Hovland (1960) model, with similar results. Schahn and Holzer (1990) cited Amelang et al. (1977); Bruhn (1979) and Langeheire and Lehmann (1986) as all reporting non significant results when relating knowledge to any other component (affect and behaviour). Studies that do report significant correlations between knowledge and behaviour have all reported quite low correlations (between .20 and .40) (Schahn and Holzer, 1990).

Therefore, although there has been success in differentiating subjects' environmental attitudes using the tripartite components of attitude, as cited by Maloney et al (1975) and Amelang (cited in Schahn

and Holzer,1990), the use of knowledge as representative of the cognitive component is not significantly correlated to environmental attitudes.

Bruvold's (1973) study of attitudes to reclaimed water usage suggests that beliefs need to be dealt with if any noticeable shift in attitudes is to occur. Using an in depth interview technique Bruvold focused on beliefs as a major determinant of environmental attitudes. He also argued that affect and behaviour were the other determinants of attitude.

It seems from the information presented here that knowledge may not be related to attitudes, and that if attitude change is the aim of an environmental education campaign then the use of knowledge may be misdirected.

1.5 Environmental Education

Much of the environmental attitude literature has focused upon the cognitive bases of attitudes even though the environmental education literature, acknowledges that information (cognitive component) are not sufficient to produce changes in attitude and thus behaviour (Iozzi, 1986b).

Arcury and Johnson (1987) state that the environmental knowledge of the general public is still low despite the very public

environmental movement that has taken place over the last two decades. Gigliotti (1989), argued further that adult campaigns and support given to the environmental movement generally, have produced ecologically concerned citizens who, armed with ecological myths, are willing to fight against the environmental misdeeds of others, but lack the knowledge and conviction of their own role in the environmental problems. It seems that environmental educators are not happy with the present situation and citizens are concerned, but still have little knowledge. Newhouse (1990) notes that what is crucially needed in designing environmental education programs is attitude research. She indicates that in order to understand how to encourage responsible behaviour, one must firstly identify the determinants of the behaviour. Attitudes are seen as one of the most important influences on behaviour, and therefore attitude studies will inform environmental educators about how to change attitudes and thus behaviours.

Knowledge, as mentioned earlier, has been used extensively in environmental education. Many school based programs are designed specifically to increase children's knowledge and awareness. Pomerantz (1990-91) evaluated 700 different ecological lesson programmes across the United States. After a team of paired raters, using extensive screening techniques, rated all 700 programs it was found that 543 addressed knowledge, 124 addressed attitudes,

and 42 addressed behaviour. Pomerantz concluded that the greatest emphasis in environmental education is on basic knowledge of ecological principles, and that little attention is given to values, the development of analytical skills, or environmentally conscious behaviour. The challenge, as Pomerantz sees it, is to bring children beyond awareness to an informed participatory level. Studies examining attitude can inform this process through their understanding of attitude change.

Environmental educator Louis Iozzi after reviewing the environmental education literature has suggested that the key entry point for environmental education is the affective domain (Iozzi, 1989b). Iozzi's argument stems from a learning model presented by Eiss and Harbeck (1969, cited in Iozzi, 1989a). This model illustrates the relationship between the cognitive, affective and behavioural domains and has been related to the teaching and learning process (see Figure 1 1).

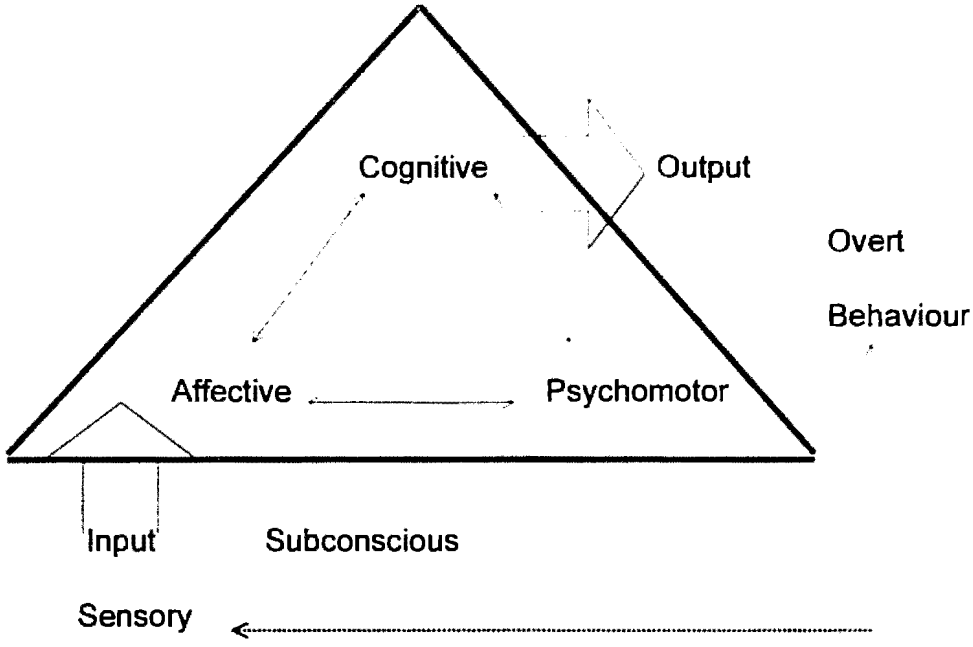

Figure 1.1 The Relationship Among Cognitive, Affective and Psychomotor Domains. (Eiss & Harbeck, 1969, cited in Iozzi, 1989a)

In this model the affective, cognitive and behavioural domains are central to the learning and evaluation process. Eiss and Harbeck (cited in Iozzi, 1989a) argued, that an individual's response to the environment is based upon the three domains (affective, cognitive and behavioural) presented in the model. The individual will evaluate the information according to whether his or her prior experience of the sensory input is cognitive or affective. However, in Iozzi's (1989a & b) reviews, he has inappropriately interpreted the affective domain to mean attitudes. With this in mind, Iozzi (1984, cited in Iozzi,1989a) concluded that further environmental education studies should

research attitudes as a large proportion of studies have construed attitude as cognition. Whilist Iozzi's caflation of attitude and affect are wray, the model itself could be extremely valuable in developing an understanding of affect and its relation to attitude. Iozzi (1989a) is clearly indicating that many environmental education studies have concentrated on cognition but not on affect, and it is affect which may be the key entry point for environmental education. Studies, therefore, should look more at the role of affect.

Gigliotti (1989) supports Iozzi by arguing that we have produced concerned citizens, but not ones that are doing anything environmentally responsible. In order to address this problem attitude studies that consider the role of affect are warranted.

There are some important points that Iozzi has made in his attempt to address the apparent failings of environmental education. First, his awareness of the role of affect is supported by many others in environmental research. Ulrich (1983) argues that research concerning affect may prove pivotal for the development of theories to advance our understanding of human interactions with the environment. Lazarus, Kanner and Folkman (1980) indicate that affect is an important indicator of the nature and significance of a person's ongoing interaction with the environment. Iozzi argues that affect and cognition need to be studied in a more holistic way if they are to impact on environmental behaviour.

The difficulty with his argument, as pointed out previously, is that of definition : he has used affect to mean attitude. Utilising the tripartite classification model of attitudes (cognition, affect and behaviour), as was utilised by Maloney et al. (1975), one can make more sense of Iozzi's argument. Exploration of the role of affect and cognition in relation to environmental issues may be beneficial to environmental education. More specifically a study that looks at emotions and beliefs may also shed light on why environmental education studies that merely examine environmental knowledge have not indicated substantial changes in attitudes.

From the literature reviewed in this chapter it would seem that further research would benefit from the specification of models to study environmental attitudes. Specifically, following the research by Maloney and Ward (1973); Arbuthnot and Lingg (1975); Smythe and Brooke (1980), the tripartite model would seem to provide a solid framework to study environmental attitudes. This framework is explored in the next chapter.

CHAPTER 2

ATTITUDE THEORY

2.1 Introduction

The term attitude is often used in the environmental literature without evidence of a clear conceptualisation of what is meant by attitude. This may be a reflection of the amount of debate that has taken place about attitude definitions. McGuire (1985), for instance, reported that by 1972 there were over 500 definitions of attitude which could indicate little agreeance and much debate on the subject of attitude.

Alternatively, it could be argued that there is a lack of application of attitude theory to the environmental domain. As the previous chapter indicates, many studies did not clearly utilise an attitude framework even though they utilised attitude terminology whilst other studies (Maloney and Ward, 1973; Arbuthnot and Lingg,1975; Smythe and Brooke,1980) did attempt to utilise the tripartite classification model of attitudes.

For the present study it is important that issues raised in the last chapter, such as the importance of affect; the measurement of salient beliefs and the whole notion that attitudes can be measured in an environmental context, can be addressed by attitude literature.

With these issues in mind and the fact that the tripartite model has already been used successfully, further exploration of this model is warranted.

2.2 The Tripartite View - Response Model

Rosenberg and Hovland's (1960) model of attitudes serves as an example of the tripartite classification system. Rosenberg and Hovland defined attitude as a learned predisposition to respond in a consistent evaluative manner toward an object or class of objects. These evaluative responses can occur in one or more of the three response domains, cognition, affect or behaviour (see figure 2.1) which they refer to as components of attitude.

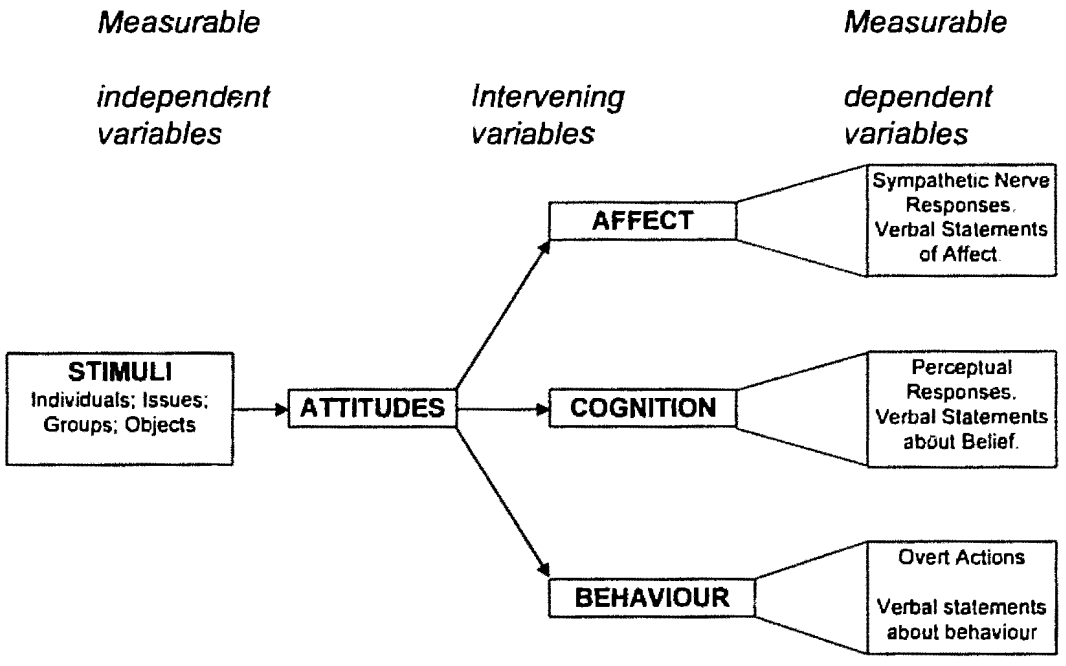

Figure 2.1 Schematic Conception of Attitudes (Rosenberg & Hovland, 1960. p3.).

Rosenberg and Hovland suggest that attitudes can be conceived as consisting of three components :how people feel (affect): what people think (cognitions): and what people do (behaviours) in relation to the object of their attitude. From the above model, affect can be inferred from physiological responses that can be measured by heart rate or galvanic skin response, or more typically affect can be inferred from verbal statements of emotions or moods. Behaviour can be measured from overt actions and stated behavioural intentions. The

measurement of responses, verbal statements of beliefs, knowledge and thoughts would constitute the cognitive component (Rosenberg & Hovland, 1960).

Campbell (1963) utilised the tripartite framework in studying attitudes toward minority groups. Using semantic differential scales in two of the response domains (cognition, affect) as well as for attitude, a correlational analysis found that there was a substantial degree of consistency between the three components measured. Campbell concluded that this consistency provided evidence for the convergence of the response domains and therefore support for the tripartite classification model.

Although Ostrom (1969), in a study of attitudes toward the church, also supported the convergence of the components. He argued that the convergence of the components was not sufficient to indicate the validity of the tripartite model. He went on to argue that what was important was the ability to discriminate between the components. The convergence of the components indicate that they are part of the same attitude, but discrimination between the components allows one to hypothesise that the components are nonetheless distinct. This was one of the most important conclusions from Ostrom's (1969) study, that attitude is the totality of cognition, affect and behaviour.

The use of an elaborate methodology in Ostrom's (1969) study should also be noted. Ostrom used a number of different scaling methods (equal-appearing intervals, likert scales, scalograms and self rating scales) within each response domain as well as measures of overt church relevant behaviour, thereby testing both a verbal and non-verbal measure of the behaviour component. These measurements were included to test the hypothesis that nonverbal responses within one component should correspond more highly to verbal responses of the same component than to other components. It was found that there was a higher degree of consistency between the behavioural verbal and non-verbal scales than with the affective and cognitive verbal scales.

As well as arguing that the components of the tripartite classification system were easily measured, as participants were readily able to respond to the tasks as defined by the components of the model, Ostrom (1969) then argued that the uniqueness of the components measured in relation to attitude indicated that independent causal factors underlie responses within each of the components.

The strongest support for the tripartite model is a study by Breckler (1984) which provides extensive and varied testing of the

components of attitude. The first of two studies utilised a multi trait-multi method approach to test the three component domains. All domains (cognition, affect & behaviour) were tested through different verbal and non-verbal measures. Affect was tested through heart rate, positive and negative mood checklists, and a Thurstone equal interval scale. Behaviour was measured by another Thurstone scale, a distance scale, and an action sequence scale. Cognition was measured by a Thurstone scale, a semantic differential scale and a thought listing procedure. Correlations and factor analysis supported a three factor solution with all measures loading on their respective components. Lisrel analysis results also supported the three factor classification cognition, affect & behaviour as three distinct components of attitude.

Breckler's (1984) rigorous testing and analysis techniques surpassed any other research that had been undertaken. Ostrom 's (1969) study included some multi-method testing, however not to the extent that Breckler utilised verbal and non-verbal measures across all components. Breckler's use of Lisrel was far more sophisticated and advanced than others had previously utilised. Breckler also included a 'live' attitude object. The object was a snake and it was present during the time all of the measures were taken.

In a second study by Breckler (1984), rather than use a live object, participants were asked to imagine that a snake was present for the duration of the study. This was deliberately manipulated to compare study one results (live attitude object) with study two results (imagined attitude object) in order to evaluate the extent to which either condition would effect the obtained results. All of the non-verbal report measures were translated into a verbal report format as there was no live object present. Although results just failed to significantly support the three factor model, the measures loaded significantly on their respective factors.

Despite extensive support for the response model, researchers also raise a number of issues. First, the complexity of the methodology extends far beyond the methodology carried out by Maloney and Ward (1973); Arbuthnot and Lingg (1975); and Smythe and Brooke (1980). Whilst the complexity of the methodology is not in itself an issue its transferability is. This complexity of the methodology may severely impact upon the number of studies carried out in the environmental domain because of the high level of expertise required to transfer these methodologies.

Having established the viability of the three factor model in study one, Breckler's (1984) second study indicated that when using verbal reports and not having the attitude object present, the estimates of the

inter component correlations may be inflated. This would suggest that any study that exclusively uses verbal report measures could produce high intercomponent consistency results, and reduce the possibility of a true account of the distinctiveness of the components in relation to the attitude.

It may, therefore, be important for other researchers to recognise the differences that may occur because of using attitude objects that are not present as opposed to those that are. In terms of a study in the environmental arena, there may be difficulties in having different environmental stimuli present. However, one must take into account the obvious limitation with Breckler's study, that only one attitude object/domain was tested: a snake.

Although Breckler's empirical validation of the tripartite model was possibly the most comprehensive, it still did not account for differences in results of other studies that were reanalysed using his analysis techniques. Brecklers' extensive use of Lisrel indicated support for the model, but past research like that of Ostrom (1969) and Kothandapanis (1971) when reanalysed by Breckler, using similar sophisticated structural analysis techniques, still failed to fully support the tripartite model (Breckler, 1984).

Thus Chaiken and Stangor (1987) argue that the results may depend on the sophistication of the structural equation (LISREL) program and the ability of the researcher to generate plausible models.

The tripartite model clearly has provided evidence in support for there being cognitive, affective and behavioral components informing attitude (Breckler, 1984). However there are a number of difficulties associated with this model.

Zanna and Rempel (1988) argued that the main conceptual problem is one of definition. In terms of the definition, the tripartite model indicates that an attitude-behaviour relation must exist. Attitude and behaviour are causally linked in the response model, which as Wicker (1969) argues has also led many theorists to feel uncomfortable and pessimistic about the tripartite model. Although the attitude-behaviour relationship is not explicitly addressed in this review, it remains an important related issue that has resulted in Zanna and Rempel reconceptulizing the tripartite model.

2.3 The Tripartite View - Formation Model

Recently Zanna and Rempel (1988) have proposed that rather than being responses, cognition, affect and behaviour are antecedents of attitude; sources of information that give rise to the attitude (see figure 2.2).

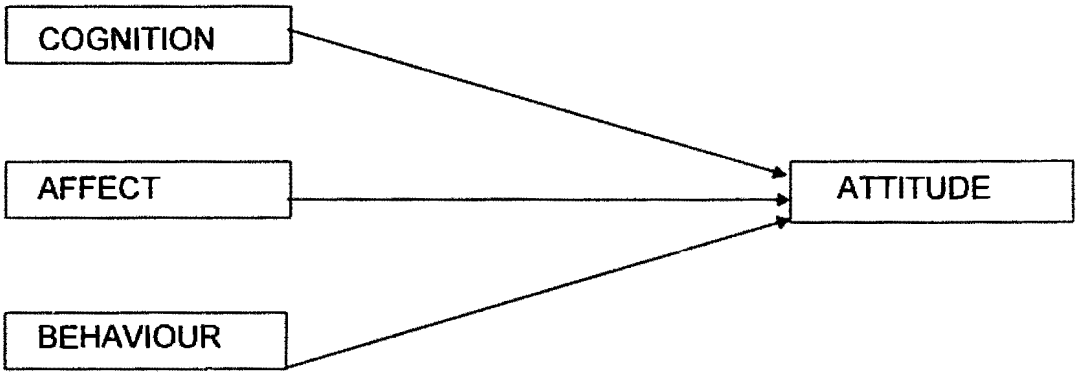

Figure 2.2 Attitude is based on three classes of information.
(Eagly & Chaiken, 1993)

Zanna and Rempel (1988) proposed that attitudes are 'the categorisation of a stimulus object along an evaluative dimension based upon, or generated from, three classes of information: (1) cognitive information, (2) affective/emotional information, and/or (3) information concerning past behaviours or behavioural intentions' (p. 319). This model suggests that attitudes are formed through cognitive, affective and behavioural processes. Attitudes are primarily cognitive entities as some degree of cognitive activity must occur in order for the attitude object to be recognised and evaluated.

This is different to the response model which characterised attitudes as a hypothetical intervening variable. The formation model described attitude as items of knowledge (cognitive) that are based upon three sources (cognition, affect and behaviour). Although

categorisation and evaluation infer cognitive activity, this in itself does not adequately inform the researcher about how the attitude object is experienced. Zanna and Rempel (1988) proposed that it is just as possible for attitude judgements to be based in a noncognitive domain as a cognitive one.

Zanna & Rempel (1988) would argue that their conceptualisation of the tripartite model looks not only at the structure but also at the process of attitude formation. This suggests that beliefs, feelings and behaviours are more than ways of responding, they are ways in which attitudes are formed and experienced. From their analysis of the literature, they concluded that past research had examined the ways in which the attitude components can be formed and experienced, however, no single study had adequately integrated all parts of the model.

Zanna and Rempel argue that other theorists like Fishbien and Azjen (1975), Zajonc (1980), and Bem (1972) have provided information about processes through which cognitive, affective and behavioural domains separately inform attitude. The cognitive process is assumed to occur through information gained about an attitude object, thereby allowing the individual to form beliefs about that attitude object. The attitude is determined by the evaluation of the beliefs whether they were obtained directly or indirectly (Eagly & Chaiken,

1993). Zajonc (1980) has indicated that attitudes (preferences) can be based on affective responses that are immediate and are not mediated by thought processes. Finally, Bem's (1972) self perception theory argued that attitudes derive from past behaviours. He suggested that one infers one's attitude is consistent with one's past behaviour. Therefore, Zanna and Rempel (1988) have integrated other models present in the literature to produce more than a tripartite model of responding they have constructed a comprehensive model of attitude structure and formation.

Zanna and Rempel (1988) acknowledged that cognition, affect and behaviour could be acting at the same time; but they proposed also that an attitude may be formed from any one of the three types of process. This important distinction has been made by Zanna and Rempel (1988) between Rosenberg and Hovland's (1960) response model and the formation model.

Within the attitude literature this view, that attitude can be formed on any of the three sources of information (cognition, affect and behaviour), has had an enormous impact on the perception of role of affect. In the past, cognition and behaviour have been the main focus of attitude research (Abelson, Kinder, Peters, & Fiske, 1982). However, with Zanna and Rempel's (1988) model, there is recognition that affect has a role to play in the formation of attitude.

This establishes an important link to the environmental domain as affect is important to our interaction with the environment (Ulrich, 1983) and as Iozzi (1989a,b) indicates, affect may be the key entry point for environmental education.

2.3.1 Role of Affect

Affect has been, in the formation model, incorporated as independent of the cognitive evaluative nature of attitudes. Zanna and Rempel (1988) indicated that the basis of an attitude may be affective, however the evaluative process requires some minimal cognitive activity. Therefore, emotions may be a component, or even the sole basis, of an evaluation, but emotion (affect) and evaluation need not occur together. It is an important distinction to make because of the previous uses of the terms attitude, evaluation and affect, in the attitude literature, to mean the same thing. In light of his study, Ostrom (1969) argued, that affect demands recognition as a differentiated component of attitudes like cognition and behaviour.

Other studies also reflect that distinctions need to be made between affect and evaluation. Breckler and Wiggins (1989) argued that evaluation refers to judgments about an attitude object represented primarily in verbal or semantic form. Affect refers to emotions and drives that are engendered by a specific attitude object, and are

associated with 'non-propositional' forms of representation. With this understanding in mind, Breckler and Wiggins (1989) asked subjects to rate an attitude object on a series of semantic differential scales (eg. good/bad, useful/useless), once according to how the object made them feel (affect) and once according to their attitude of the object (evaluation). Through correlational, analysis it was found in some domains (blood donation, computers and standardised admission tests) affect and evaluation were measuring different things. Affect was also seen to predict self reported behaviour better than did evaluation (in terms of blood donation).

The importance of this study is that affect and evaluation can be empirically demonstrated to constitute distinct entities, the affective domain and the evaluation/attitude. In terms of the tripartite model, this provides some empirical legitimacy for inclusion of the terms affect and evaluation. There are also implications for the way in which the concepts are measured. Tesser and Shaffer (1990) highlighted that the separation of affect and evaluation as components of attitude has made researchers aware of the variety of ways attitudes can be represented and measured, and that this is vital to the further development of the concept.

Abelson et al. (1982) further explored the view that affect has been misrepresented as a legitimate concept in its own right and that

affect has been prematurely subsumed under cognition. Abelson et al. (1982) argued that affect and cognition differ qualitatively when any judgment is made. They differ as affect is less filtered and more immediate, and has a different function than cognition. Tompkins (1962) argued that 'affects' functions as the motor for behaviour because it more directly reflects the motivation to behave, and, therefore, Abelson et al. (1982) concluded that affect is a better motivator than cognition.

In support of this view Abelson et al. (1982) conducted a study looking at the affective reports and semantic judgements of people toward political candidates. Subjects were asked to respond to a 12 item affective checklist (Does _____ make you feel *angry*?) for six political candidates. They were also asked to rate each of the candidates on sixteen traits (eg. Is _____ an *honest* person) to indicate how well each trait reflected each candidate (extremely well - not well at all), and to use a scale thermometer (0 unfavourable to 100 extremely favourable) for the attitude score. Using multiple regression affect was found to significantly predict the evaluation (attitude). In their study Abelson et al. (1982) separated affect into two further groups: positive and negative affect. It was found that both scores made significant contributions to the evaluation of each candidate. Abelson et al. (1982) concluded by indicating that affective responses are not redundant

when used with semantic judgements. Most importantly, Abelson et al. (1982) supported Zajonc's (1980) view that affect has a much wider role in attitude formation than has been previously illustrated in the attitude literature.

Possibly the failing of the attitude literature to recognise the role of affect is because of the neglect of the context in attitude studies. Within the environmental arena, affect is clearly represented as an important issue. With recognition that affect has a role in the attitude literature (Abelson et al., 1982), measurement techniques have been developed that may be appropriate or transferable to the environmental arena. There are a number of methodological issues that have not been addressed, in relation to the measurement of affect, cognition and behaviour. These also have an impact on the way in which attitude can be measured in the environmental arena and therefore will be addressed in the next section.

2.4 Methodological Considerations

The separation of affect and evaluation (Breckler & Wiggins, 1989) has been of major importance to the Zanna and Rempel tripartite model, and, as the Abelson et al. (1982) study has indicated, affect as well as cognition has a role in attitude studies. However, there are

other issues pertaining to the measurement of the informational domains themselves that have not yet been explicitly addressed.

In terms of the cognitive domain, beliefs have been represented as the measurable item (Rosenberg & Hovland, 1960; Zanna & Rempel, 1988). However, Cronen and Conville (1975) recognised the difficulty in using standard beliefs to predict attitudes. Cronen et al. , in a test of Fishbein's summation theory, noted that the crucial assumption "an individual's attitude is viewed as a function of the individuals own beliefs about the object (ie those in his hierarchy) and the evaluative aspects of those beliefs' (1975:47) was not being met through the use of standardised belief scales. Their study utilised a listing technique to obtain 'characteristics, qualities and attributes' of politicians (the attitude object). Subjects were given 75 seconds to record their beliefs and were also asked to complete an attitude scale. The correlation between the attitude score and subject's own beliefs was reported at .77($p<.001$). This was found to be significantly higher than other studies that were also testing the Fishbein's assumption using a standard semantic differential scale.

This particular study indicated a number of things: first, the importance of salience, in attitude studies, and secondly the importance of the way variables are operationalised and measured. Salience of beliefs refers to the beliefs that each individual regards as important in

informing their own attitude. Standard beliefs may not represent those that are important or salient to the individual and therefore may not be a true representation of the beliefs that inform the attitude. This leads to the second point, this being that the way in which the domain is measured will effect the result obtained. Cronen et al's (9175) study has indicated this.

Stangor, Sullivan and Ford (1991) utilised a similar listing procedure to Cronen et al. (1975), in determining prejudice toward nine racial and ethnic groups. They utilised Zanna and Rempel's (1988) model of attitudes by taking measures of individual stereotypes, consensual (group/society agreed) stereotypes, emotions and attitude. The individual stereotype measure asked subjects to list what they thought about people from each of the groups, thus it was designed to elicit personal beliefs about the groups. Affects were measured through a standard 10 item checklist (tick if each emotion was felt in relation to the group). Although Stangor et al. (1991) found affect to be a stronger predictor of attitudes, the individual stereotype measure was better then the consensual measure, as a predictor, again pointing both to the importance of salience and the methodology used. Beliefs, and more importantly to attitude studies salient beliefs, seem to be the best measure of the cognitive domain.

The argument that the use of standard checklists in attitude studies does not allow for salient beliefs to be elicited as items representing the cognitive domain has been extended to the affective domain. Cronen and Conville (1975) argued that when one uses standard checklists or checklists relevant to the area being studied, the subjects are not responding with their own beliefs and emotions, the salient beliefs and emotions in relation to their attitude. They are responding to another set which may, in turn, influence their evaluation and response. Abelson et al. (1982) and Stangor et al. (1991) supported this view.

Eagly, Mladinic and Otto (1994) also argued that researchers face another difficulty, in that when subjects are presented with standard checklists they may interpret each affect or cognitive item in a way that makes them consistent with the evaluation/attitude they hold. There is no control over the evaluative laden meaning of the items on the standard lists. As studies by Ostrom (1969) and Breckler (1984) indicated standard measures may differentiate affect, cognition and behaviour but they will not examine the differential prediction of attitudes from each of the domains. Therefore, the results obtained from studies that use standard checklists are those that confirm convergence rather than looking for discrimination between the

domains. Discrimination is vitally important if one is aiming to target the domain that may produce changes in attitude (Eagly et al. 1994).

This would suggest that the environmental studies referred to in the previous chapter may well have influenced their results by using standardised lists and items to measure the components of attitude.

Having rejected standard adjective and bipolar scales because of problems mentioned above, Esses et al. (1993) developed their own measure of individual stereotypes. They asked subjects to list characteristics that they would use to describe typical members of the target social group being studied. The five groups studied were English Canadians, Pakistanis, French Canadians, Native Indians and Homosexuals. Participants were then asked to assign a valence to each characteristic listed (--,-,0,+,++). Finally, subjects were asked to indicate a percentage (0%-100%) of the target social group to which each characteristic would apply. In order to transform the responses into numerical values a multiplicative formula was applied giving a stereotype score.

This measure was then adapted to elicit symbolic (customs and traditions) beliefs and emotions. Using multiple regression Esses et al. (1993) found that affect was the strongest unique predictor of attitudes toward two of the five groups (French Canadians and Native Indians). Symbolic beliefs best predicted attitudes toward Pakistanis and

homosexuals and the stereotypes measure had no unique role to play in the prediction of attitudes toward any of the groups. Overall beliefs were seen to play the greatest role in predicting attitudes towards groups that were perceived in an unfavourable light, and emotions for those regarded favourably. Esses et al. (1993) concluded by indicating that the cognitive and affective components both uniquely contribute to attitudes toward social groups. Further, they proposed that the individual stereotype measure more realistically captured an individuals' salient responses than the consensual measure for the cognitive domain.

Eagly et al. (1994), building upon these findings, utilised the 'free response' technique in determining, first, the cognitive and affective bases of attitudes toward four social groups (men, women, democrats and republicans) and, in a second study, the bases of three social policies (abortion on demand, welfare assistance for the poor, and affirmative action in employment). Eagly et al. (1994) noted that the 'free response' elicitation process addresses the shortcomings of the standard checklists when used in attitude studies. The free response method is seen to elicit the salient beliefs and emotions of individuals in relation to the attitude object. They argued that there was no need for individuals to invent new emotions and beliefs, such as those stimulated by checklists presented in standard scales. They also

argued that problems associated with the relative importance of items is reduced because only salient beliefs are used in the measure. Previously, complex multiplicative formulas that assigned weights to responses to reflect the importance of the beliefs and emotions being rated were needed. When using salient beliefs and emotions the need for the more complex weighting formulas is diminished (Eagly et al. 1994). Cronen et al. (1975) also argued that expectancy weights are not seen to improve prediction.

Incorporating a simple prediction model and using multiple regression Eagly et al. (1994), first elicited the attitudes, cognition, and affect to four social groups (men, women, democrats and republicans). The aim was to examine the 'potential non-cognitive determinants of attitudes' using the free response technique.

Each of the 324 subjects were asked to fill in an attitude scale which consisted of five items on a seven point scale (good-bad, positive-negative, valuable-useless, pleasant-unpleasant, nice-awful). These were coded from -3 to +3. The cognition scale, in the form of a belief elicitation process, asked subjects to list up to ten characteristics they believed the group held. Then they were asked to indicate what proportion of the group held this characteristic. Finally, each characteristic was rated on a seven point scale (good-bad), and scored again -3 to +3. Last, the same elicitation process was utilised for

eliciting emotions, however, the second part asked participants to record the percentage of the group for which they felt that emotion.

After aggregating the totals, multiple regression revealed that attitudes to all four groups were significantly predicted by beliefs, with attitudes to democrats also being significantly predicted by affects. To explore the generality of their findings, Eagly et al. (1994) conducted a second study looking at attitudes toward different social issues. The issues used were abortion on demand; welfare assistance for the poor, and affirmative action in employment. These issues were chosen because of their history of producing political conflict, in the United States. Eagly et al. (1994) characterised these issues as 'hot button' issues, as they were thought to produce elaborate cognitions, strong feelings and variation in attitudes.

A total of 299 participants were asked to complete the same tasks used in the first study, these being attitudes on the semantic differential scale, beliefs about the issues or the effects of the issues and emotions about the issue. Results indicated that affect was a significant predictor for two issues (abortion on demand and affirmative action in employment), but beliefs remained the best predictor of attitudes to all three issues. The intention of these two studies was primarily to test the viability of the free response technique. In both studies reliability analysis results were satisfactory (.62 - .94), other

results indicated no differences with the number of beliefs and emotions elicited, and there were no reported difficulties from the participants.

This led Eagly et al. (1994) to conclude that the free response method successfully elicits peoples' beliefs and emotions, and is a much more defensible measure than rating scales for estimating the evaluative content of the beliefs and affects; and that when a persons own responses are utilised there is no need for weighting of responses, as previously mentioned. In terms of the attitude domains that were tested the results did provide strong support for previous results concerning social groups (Esses et al., 1993), and the role of affect (Abelson et al., 1982) in affective laden domains. However, Eagly et al's (1994) study indicated that attitudes can be predicted, using this framework and methodology, for controversial social issues and for social groups. They go on to suggest that other attitude domains need to be studied.

2.5 Summary

Zanna and Rempel's (1988) model argued that there are three sources of information on which an attitude may be formed and thus experienced, these being cognition, affect and behaviour. For the most part cognition, in the form of beliefs, has been the source of information that best predicted attitudes in many different domains. Certainly

Bruvold (1973) argued that salient beliefs are best related to environmental attitudes.

Abelson et al. (1982) hypothesised that in certain areas affect may be the best predictor of attitude. Their results confirmed this hypothesis. Whilst a number of other studies using the same theoretical framework (Stangor et al. 1991; Esses et al. 1993; and Eagly et al. 1994) have, to some extent, supported affect's role, there have been differences in the many methodologies that have been used. Most recently Esses et al. (1993) and Eagly et al. (1994) tested Ableson et al's. (1982) notion that affect may have an important predictive role in determining attitudes toward social groups utilising a self elicitation methodology.

Zanna and Rempel (1988) recommended asking subjects about their feelings, beliefs and behaviours about attitude objects, and highlighting the methodological problems associated with scale measures utilised by others (Abelson et al. 1982; Stangor et al. 1991). Eagly et al. (1994), in response to this, adopted a free response methodology which involves the self elicitation of salient beliefs and emotions of different attitudes. Eagly et al. utilised the free response methodology to determine the beliefs, emotions and attitudes toward three different controversial social issues. Although the role of affect was minimally supported, Eagly et al. (1994) argued that further testing

of this hypothesis is needed in light of past research results. Further testing should involve the replication of Eagly et al's study as well as extension of this framework and methodology into other domains where affect may have a role to play (Zanna, Personal Communication, June 13, 1995).

2.6 The Present Study

Norman (1975) argued that there is inherent value in assessing both the cognitive and affective bases of attitudes. Other variables may have an important contribution to make, however, in order to make behavioural predictions consideration needs to be given to the structural characteristics of attitude. Zanna and Rempel (1988) argued that their tripartite classification model is more than a model examining the structure of attitudes; it also examines the formation process.

Within the environmental literature, Reser (1995a) suggested that attitude studies based on clear frameworks can offer important findings to the environmental domain. Currently, studies in the environmental arena have a number of weaknesses. First, there are very few clear conceptual models being utilised. Second, when models are used, they generally relate in some way to attitudes, but there is little consistency in use of terms, and there is little replication of studies,

making it difficult to substantiate results obtained. Third, there has been an emphasis within the environmental concern, attitude and education literatures, on the cognitive basis of attitudes. This again indicates a lack of awareness of contemporary attitude models that incorporate affect and behaviour.

The present study attempts to define attitudes toward different environmental issues by utilising a clear conceptual model as proposed by Zanna and Rempel (1988). This model indicates that attitudes are a summary evaluation and can be formed and based on three sources of information: cognition, affect and behaviour.

More recently, the attitude literature and the environmental education literature have both highlighted the importance and the role of affect. Within the environmental literature, there has been concern raised at the apparent lack of change in attitudes and proenvironmental behaviour over the past few decades. Environmental educators suggested that this problem may have arisen as studies/programmes have relied on the cognitive domain as the sole indicator and bases of environmental attitudes. They proposed that future studies need to ascertain the role of affect in attitude formation studies because of its importance in the environmental arena. The argument presented in the attitude literature is that attitudes can be affectively based (Abelson et al. 1982; Stangor et al. 1991; Esses et al.

1993; and Eagly et al. 1994) for arenas that are hypothesised to be affectively laden.

The methodology utilised by Eagly et al. (1994) enables salient beliefs and emotions to be elicited in relation to attitudes toward social issues. Eagly et al. (1994) indicated that their study needed replication and their methodology needed testing in other area. Therefore, the goals of the present study are to 1] replicate Eagly et al's. (1994) study, 2] to extend the model and methodology into the environmental arena by including environmental issues.

2.6.1 Research Questions

1A. Do affect and cognition independently and significantly predict attitudes toward different environmental issues?

1B. Do affect and cognition independently and significantly predict attitudes toward different social issues?

2. Does affect predict attitudes toward different environmental issues after cognition has been accounted for?

3. Does behaviour predict attitudes toward different environmental issues after affect and cognition have been accounted for?

4. What are the affects and cognitions generated in response to different environmental issues?

5. Are there differences in the amount of affects and cognitions generated in relation to different environmental issue?

CHAPTER 3

THE PILOT STUDY

3.1 Purpose

In the pilot study Eagly et al's. (1994) methodology was applied to issues in the environmental arena. The free response technique involves eliciting from participants their salient beliefs and emotions in regard to the attitude object, as opposed to having them respond to a standard set of beliefs and affects that may not be relevant to them.

Therefore, the main aim of the pilot was to determine which environmental issues would be utilised in the main study as attitude objects, using Eagly et al's. (1994) criteria. The second aim was, to provide a preliminary assessment of the association between attitudes, beliefs, emotions and behaviours for those chosen environmental issues. A further aim of the pilot was to test whether the free response methodology would be able to generate beliefs and emotions in relation to the attitude objects and last, the pilot was utilised to seek

feedback from participants regarding the questionnaire. Feedback was sought through a debriefing session directly after the questionnaire administration.

Adjustments were then be made depending on the feedback and results received.

3.2 Rationale for Environmental Issues

Six environmental issues were chosen from a previous study on environmental issues. During 1993, an extensive study was carried out in the City of Wanneroo, Perth, Western Australia, to determine the environmental and health concerns of the residents. The study identified a number of environmental issues that were of most concern to the residents of the City of Wanneroo. These issues were the protection of native flora ;protection of native fauna; restriction of vehicle emissions; development of landsites (bushland, wetland, rural, coastal) for future use; logging of native forests ; and reducing the amount of waste (Pooley, Hills, O'Connor, & Drew, 1994).

These issues were chosen in accordance with the criteria that Eagly et al. (1994) reported. As the Wanneroo study (N=563) was seen to represent the residents' concerns, the issues chosen represent salient identified concerns of the public. Eagly et al. (1994) had chosen their social issues on the same basis, that they were salient

issues in American society, which had been debated extensively allowing people to form opinions and develop attitudes, beliefs and emotions. The six environmental issues chosen for the pilot study were salient enough to ensure some level of thought and emotions to be present when participants were asked about their attitudes toward these issues.

3.3 Method

3.3.1 Participants

The survey instrument was tested on a class of third year psychology students. This class consisted of 27 people (6 men and 21 women, age range 19-55). They completed the instrument as part of a third year social psychology laboratory exercise. Students were given the option to withdraw if they wanted to and were assured of the confidentiality and anonymity of the responses thus complying with the ethical requirements of the APA.

3.3.2 Instrument

The instrument was designed in accordance with the Eagly et al. (1994) studies. It contained the six environmental issues chosen

from the Wanneroo study (Pooley et al. 1994) according to the rationale outlined earlier.

The instrument was designed to be self administered and comprised six tasks (See Appendix A). Task One asked the participants to rate their attitude to each of the six issues on seven point Likert scale with anchors of -3 (Opposed to) and +3 (In Favour Of). Task Two required participants to think about each issue and list the most important beliefs (up to ten) that came to mind about each issue. Each issue was presented on a separate page with a box for each belief (ie the page was headed with the issue and ten boxes appeared under it). In each box appeared a scale, -3 (unfavourable) to +3 (favourable), which participants were asked to use to rate each belief.

Task Three consisted of demographic information (ie gender, age, political orientation). Task Four was the same as task Two, except that, respondents were asked to reflect on each issue and record their emotions.

Task Five asked the participants to decide which one of their responses (either a feeling or belief) was the most influential or was driving their attitude toward each issue. The last task consisted of 14 questions about behaviours associated with environmental activism (ie. Have you ever donated money to support or oppose environmental issues?; Do you consider yourself an "activist" on environmental

issues?). This was included as a general behavioural scale developed by Eagly (Personal Communication, June 19,1995) for use with social issues and was adapted to the environmental arena.

Each participant's score for the attitude scale was derived from the score he or she gave to the attitude object. Scores for the beliefs and emotions were obtained by summating the scores on the favourable-unfavourable scale for each belief or emotion and dividing by the number of beliefs or emotions recorded. The behaviour scale score was derived by summing the "Yes" responses to the behavioural items.

3.3.3 Procedure

The participants were already aware of and were prepared for, a laboratory exercise about attitudes. The survey instrument was given to each participant with an explanation that this was their attitude laboratory exercise and that it would require approximately 30 minutes to complete. Participants were told to read the instructions and were asked to work alone. The researcher then asked if there were any questions and told the participants to begin. The participants were also told that a debrief would follow the data collection phase.

3.4 Results

The results of the six issues differed in terms of the variation of attitude, beliefs and emotions (see Appendix D). As the issues to be chosen for the main study had to fulfil the criteria set out by Eagly et al. (1994), that is that the issues were characterized as 'hot button' issues, thought to produce elaborate cognitions, strong feelings and variation in attitudes. Only three of the issues fulfilled this criterion, these were Logging of Native Forests, Development of Landsites, and Restriction of Vehicle Emissions.

Analysis of the three issues involved Pearson Product moment Correlations to indicate the relationship between the attitude scores and the belief and emotion scores. There were a number of significant relationships as indicated in table 3.1.

Table 3.1.

Correlations between Variables and Issues

	Restriction of Veh. Em.			Urban Development			Logging Native Forests		
Variable	1	2	3	1	2	3	1	2	3
1 Attitude	-			-			-		
2 Beliefs	.38	-		.63*	-		.37	-	
3 Affects	.16	.24	-	.57	.64*	-	.35	.71*	-

* $p<.05$

Finally Standard Multiple regressions were performed to determine whether attitude scores to each issue could be predicted from the issues affect score or belief score. Results indicated that the first two issues (Restriction of Vehicle Emissions and Urban Development) were significantly predicted by the belief variable (see table 3.2).

Table 3.2

Predictors for each Issue

Issue and Predictors	B	Beta	R	R^2
Restriction of Vehicle Emissions				
Beliefs	.27	.41*		
Affects	-.19	-.25	.42	.18
[F(2,20)=2.22, p<.05]				
Urban Development				
Beliefs	.45	.44*		
Affects	.30	.29	.66	.44
[F(2,21)=8.27, p<.05]				
Logging Native Forests				
Beliefs	.16	.21		
Affects	.17	.18	.38	.14
{F(2,21)=1.72, p<.05]				

* p = .05

Another consideration of the pilot was the appropriateness of the methodology to establish whether the participants were able to generate beliefs and emotions in response to the environmental issues.

Dependant t-Tests were also performed revealing significant differences between the number of beliefs and emotions elicited for all three issues. Significantly more beliefs were elicited than emotions (see Table 3.3).

Table 3.3

Belief And Affect Totals For Each Issue

Issue		M	SD	t	p
Veh Em.	Beliefs	4.3	2.4	2.46	.022
	Affects	3.1	1.8		
Urban Deve.	Beliefs	4.4	2.0	3.85	.001
	Affects	2.5	1.1		
Log. Nat. Forests.	Beliefs	4.4	1.7	5.85	.000
	Affects	2.5	1.1		

Examples of beliefs and emotions (see Appendix B) as well as feedback from the participants indicated no difficulty with the

methodology. Other comments regarding different aspects of the questionnaire indicated that tasks two and four needed to be counterbalanced for the main study, so that any effect of the elicitation of beliefs before emotions did not compound the main study's results.

3.5 Discussion and Conclusions

The main aim was to examine the appropriateness of the environmental issues for inclusion in the main study. All six environmental issues fulfilled this conceptual criteria and therefore, were included in the pilot study. In order to assess the variation in attitudes, descriptive analyses were performed revealing that only three issues indicated some degree of variation of responses. These issues were the, Restriction of Vehicle Emissions; Development of Landsites (bushland, wetland, rural, coastal) for future use; and, Logging of Native Forests (see Appendix D). These three environmental issues were chosen from the six utilised in the pilot study. The criteria for inclusion in the main study were firstly those utilised by Eagly et al. (1994), mentioned earlier. However, the main study would also include the three social issues from the Eagly et al. (1994) study in order to demonstrate the validitiy of the methodology.The survey was modified to reflect changes indicated by the respondents, tasks Two and Four were counterbalanced so that order effects could be minimised.

Having chosen the environmental issues for the main study, results of the pilot indicate that beliefs and emotions are correlated with attitude for two of the issues. It is interesting to note that affect has not been identified as significant predictor of attitudes for any of the issues, although, affect and beliefs are significantly correlated for the urban development and logging of native forests issues.

The next chapter reports the method of the main study using the modified survey instrument.

CHAPTER 4

THE MAIN STUDY

4.1 Participants

The participants in the main study were drawn from undergraduate psychology classes from Edith Cowan University. The convenience sample consisted of 66 first, second and third year students enrolled in any undergraduate psychology unit. There were 47 females and 19 males ranging in age from 18-50 years with an average age of 30.02 years and a SD of 4.22. Of these 13 were in first year, 7 in second year and 46 in third year. All participants volunteered to take part in the survey and were assured of anonymity and confidentiality as per the ethical requirements of the American Psychological Association.

Of 250 survey instruments distributed in this manner, a total of 66 were returned giving a response rate of 26.4%.

4.2 Instrument

The instrument used in the main study was in part, the modified version of the pilot study (see Appendix C). The main study instrument contained six issues including three environmnetal issues (Restrictions on Vehicle Emissions, Logging of Native Forests and Development of Landsites) chosen from the pilot study and three social issues used in Eagly et al's. (1994) study Abortion on Demand, Welfare Assistance for the Poor and Affirmative Action in Employment. These social issues provide a replication of Eagly et al's. (1994) study as a methodological check the environmnetal issues provide an extension to Eagly et al's. (1994) work. In order to separate the two parts of the study the replication will be referred to as Stage Two and the extension will be referred to as Stage One.

For methodological clarity the respondents were not aware of the differentiation between stage one or stage two of the main study. All six issues were treated identically in the tasks outlined. The instrument was divided into six tasks: task one comprised the attitude scale to the six issues: task two and four were the belief and emotion scales: task three provided the demographic information: task five required the participant to indicate whether emotion or belief was more important to the respondent's attitude, to each of the issues: and finally task six contained a 14 item behavioural checklist. Task two and four were

counterbalanced with half of the surveys having the emotion scale as task two and the belief scale as task four and the other half of the surveys containing the belief scale as task two and the emotion scale as task four.

4.3 Procedure

The participants were obtained by request through lectures of undergraduate psychology units. Permission was obtained from unit coordinators and then the researcher approached different unit lecture groups and explained to the student body that the study was looking at the perceptions of different environmental and social issues, and that participation and completion were totally voluntary. It was indicated that it would take around 30 minutes to complete and that it could be returned to a box placed at a convenient location. If they were interested in participating in the study, they were encouraged to take a survey and complete it individually and as soon as possible. Participants were also informed that this study was not connected with their assessment, and they could withdraw at any time by not returning the survey. After one week a reminder visit to each of the classes was made. All surveys were returned via the box.

Once obtained, the data was coded and entered for statistical analysis.

4.4 Data Coding

The questionnaires were coded and scored by the researcher. In tasks two and four, an average for each issue was obtained by adding each individual score and dividing the sum by the total number of beliefs or emotions.

For example if the participant entered three emotions and scored them -3, +2 and -3; the total is -4 which was then divided by 3 to give a score of -1.33.

All scores were the entered onto SPSS for WINDOWS and were analysed by the researcher.

4.5 Ethical Considerations

The present study obtained ethical clearance from the Edith Cowan University Ethics Committee provided that

1. The Participants were informed that the study was anonymous and confidential in that no names were recorded.

2. Participants were aware that the questionnaire and its completion were not attached to any assessed work.

3. Participants were made aware of their right to withdraw consent at any time during and after the study.

CHAPTER 5

RESULTS

This chapter considers the results for each of the research questions.

5.1 Research Questions One A and One B

One A :*Do affect and cognition independently and significantly predict attitudes toward different environmental issues?*

Stage One - Environmental Issues

In order to answer this a number of analysis techniques have been employed. Correlations and Standard Multiple Regressions have been utilised to determine if affects and cognitions predicted attitudes toward the different environmental issues.

5.1.1 Correlational Analysis

Pearson Correlation coefficients were computed for the attitude, affect and cognition scores. Examination of scatterplots did not suggest the violation of any assumptions. Table 5.1 shows means and correlations of all variables. Mean attitude scores were measured on a

-3 to +3 scale, therefore indicating that logging of native forests and urban development were seen as unfavourable and restriction of vehicle emissions was seen as favourable. All the correlations were positive and apart from the attitude and cognition score for restriction to vehicle emissions issue, all correlations were significant, ranging from low positive (.33) to strong positive (.79).

Table 5.1

Correlations Among Beliefs, Emotions And Attitudes Toward The Environmental Issues.

Issue	Mean Att SD	B-Att	E-Att	E-B
Logging Native Forests	-2.04 1.55	.35*	.37*	.33*
Urban Development	-.86 2.06	.73*	.59*	.66*
Restriction of Vehicle Emissions	1.66 1.77	.23	.42*	.62*

N = 66. B = Beliefs; E = Emotions; Att = Attitude.

*, $p<.05$

5.1.2 Standard Multiple Regressions

Residual scatterplots were examined for possible violations of the assumptions of normality, linearity, homoscedasticity, and none were evident. Tabachnick and Fidell (1989) indicate that tolerance tests conducted by SPSS protect against the violation of the assumption of multicolinearity.

A series of Standard Multiple Regressions were then performed in order to determine the unique contribution of belief and emotion to attitudes concerning the environmental issues. As shown in Table 5.2 one issue, Logging of Native Forests, was significantly predicted by cognition and affect, where as Development of Landsites was uniquely predicted by cognition only, and Restriction of Vehicle Emissions was uniquely predicted by affect only. In contrast to stage one the variances explained by cognition and affect for each issue were quite different, Logging Native Forests had 21% explained, Restriction of Vehicle Emissions had 16% explained and Development of Landsites (Urban Development) had 54% explained.

Table 5.2

Predictors for each Environmental Issue

Issue and Predictors	Beta	B	R	R^2
Restriction of Vehicle Emissions				
Beliefs	-.04	-.03		
Affects	-.43**	.37	.41	.16
[F(2,56)=5.50, p>.01]				
Urban Development				
Beliefs	.59***	.62		
Affects	.20	.21	.74	.54
[F(2,59)=34.67, p<.001]				
Logging Native Forests				
Beliefs	.27*	.21		
Affects	.28*	.20	.45	.21
{F(2,60)=7.79, p>.001]				

N = 66. *, $p<.05$; **, $p<.01$; ***, $p<.001$

One B : Stage Two - Social Issues

The same analysis techniques were utilised with the social issues, in the first instance to provide comparisons in terms of the methodologies employed. Therefore correlations and standard multiple regressions are firstly reported to determine if affects and cognitions predicted attitudes toward the different social issues.

5.1.3 Correlational Analysis

Pearson Correlation coefficients were computed for all attitude, affect and cognition scores. Examination of scatterplots did not suggest the violation of any assumptions. Table 5.3 shows means and correlations of all variables. Mean attitude scores were measured on a -3 to +3 scale, therefore indicating that all three social issues were seen as favourable. As can be seen, all correlations were positive and all were significant, ranging from mid positive (.53) to strong positive (.79). These results indicate that all of the attitude, belief and emotion scores for each social issue are significantly correlated to each other.

Table 5.3

Correlations Among Beliefs, Emotions And Attitudes For The Social Issues.

Issue	Mean Att SD	B-Att	E-Att	E-B
Abortion On Demand	.5 2.25	.77*	.76*	.79*
Affirmative Action Employment	1.35 1.46	.49*	.60*	.53*
Welfare Assistance for the Poor	2.16 .9	.64*	.69*	.73*

N = 66. B = Beliefs; E = Emotions; Att = Attitude.

*, $p<.05$

5.1.4 Standard Multiple Regressions

Residual scatterplots were examined for possible violations of the assumptions of normality, linearity, homoscedasticity, and none were evident. Tabachnick and Fidell (1989) indicate that tolerance tests conducted by SPSS protect against the violation of the assumption of multicolinearity.

Once again, a series of Standard Multiple Regressions were then performed in order to determine the unique contribution of belief

and emotion to attitude for the social issues. As shown in Table 5.4, all the issues (Abortion on Demand, Affirmative Action in Employment, Welfare Assistance for the Poor) were significantly predicted by both cognition and affect. For abortion on demand 65% of the variance can be attributed to cognition and affect. For affirmative action in employment 41% of the variance is explained. Finally, for Welfare Assistance for the Poor, cognition and affect explain 51% of the variance.

Table 5.4

Predictors for each Social Issue

Issue and Predictors	Beta	B	R	R^2
Abortion on Demand				
Beliefs	.43**	.50		
Affects	.42**	.50	.80	.65
{F(2,60)=54.70, p>.001]				
Affirmative Action..				
Beliefs	.45***	.42		
Affects	.27*	.22	.64	.41
{F(2,52)=17.78, p>.001]				
Welfare Assistance.				
Beliefs	.31*	.21		
Affects	.46***	.31	.72	.51
{F(2,62)=32.79, p>.001]				

N = 66. *, $p<.05$; **, $p<.01$; ***, $p<.001$

5.2 Research Question Two

Does affect predict attitudes toward different environmental issues after cognition have been accounted for?

5.2.1 Hierarchal Multiple Regressions

To answer this research question, hierarchal regression was used to determine what affect contributed after cognition was taken into consideration. Therefore do we gain anything when affect is added to the equation (see Table 5.5). For Urban Development, affect did not significantly contribute to the variance explained after cognition was taken into account. For the other two issues, affect did significantly contribute explaining a further 11% with respect to restriction of vehicle emissions and 7% for logging of native forests.

Table 5.5

Hierarchal Multiple Regressions Variances Of Environmental Issues.

Variable	B	Beta	R	Change in R^2	R^2
Urban Development					
Beliefs	.62	.59*	.72		.52
Emotions	.21	.20*	.74	.02	.54
[F(2,59) = 34.6, p<.05]					
Logging Native Forests					
Beliefs	.21	.27*	.37		.14
Emotions	.21	.28*	.45	.07	.21
[F(2,60) = 7.79, p<.05]					
Restriction Vehicle Emissions					
Beliefs	.03	.04	.22		.05
Emotions	.36	.42*	.41	.11	.16
[F(2,56) = 5.5, p<.05]					

N = 66. *, $p<.05$

5.2.2 Subsidiary Analyses: Descriptive Statistics and Chi Squares

As a conceptual check for the regressions, task five of the instrument asked respondents whether affect or cognition was most important to their attitude toward each issue. Descriptive statistics were produced for each of the issues. One way Chi squares were also calculated resulting in two significant differences between affect and

cognition for logging native forests and urban development (see table 5.6).

Table 5.6

Descriptive Statistics And One Way Chi Squares Of Importance Of Affect And Cognition In Relation To Attitude For Each Environmental Issue.

Issue	Variable	Frequency	%	x^2
Logging Native Forests	Belief	24	37	
	Affect	41	62	
	Missing	1	1	4.45*
Urban Development	Belief	24	37	
	Affect	40	60	
	Missing	2	3	4.00*
Restriction Vehicle Emission	Belief	30	45	
	Affect	33	50	
	Missing	3	5	0.14

* = $p < .05$.

5.3 Research Question Three

Does behaviour predict attitudes toward different environmental issues after affect and cognition have been accounted for?

5.3.1 Descriptive Statistics

Descriptive statistics were computed for the general environmental behaviour scale. The scale is measured on a range of 13 to 26, where 13 indicates little involvement in environmental issues and 26 indicating a high involvement in environmental issues. The final behaviour scale question indicates to what degree the respondent believes they are an environmental activist or not. The results (see table 5.7) indicate that the average behaviour scale score was 19.2. The final question resulted in 58 % of the sample indicating that they did not consider themselves an environmental activist, with 42% indicating that they were to some extent and none indicating that yes they were definitely an environmental activist.

Table 5.7

Environmental Behaviour Scale Descriptive Statistics

Value	Freq	%
15	1	1.5
16	2	3.0
17	8	12.1
18	12	18.2
19	12	18.2
20	16	24.2
21	5	7.6
22	5	7.6
23	1	1.5
24	1	1.5
25	1	1.5
Missing	2	3.0
Total	66	100.0

5.2.2 Correlational Analysis

A low positive significant relationship was indicated between the Behaviour Scale and the Attitude Score (Urban development), r (64) = .35, p=.005. Therefore, the higher the behavioural score (the more involved in environmental issues) the more favourable the attitude toward the development of landsites.

5.3.2 Multiple Regressions with Environmental Behaviour Scale

Hierarchal multiple regression analysis was carried out with the behaviour scale included as a predictor variable. The attitude toward Urban Development was significantly predicted by beliefs and behaviour with belief being the greatest unique predictor. This result was forecasted by the significant correlation obtained between Urban Development attitude score and the behaviour scale.

Even though the behaviour scale does not significantly predict attitudes for any other issue, there are changes apparent in the total variances explained. There is an increase in the R^2 from .54 to .61 for Urban Development and an increase in R^2 from .21 to .24 for Logging of Native Forests and a decrease in R^2 from .16 to .13 for the Restriction of Vehicle Emissions.

Table 5.8

Multiple Regressions Coefficient And Variances Of Environmental Issues With Environmental Behaviour Scale.

Variable	B	Beta	R^2	Change in R^2	R
Urban Development					
Beliefs	.59	.55*			
Affects	.20	.19*	.54		.74
Behaviour	.31	.27*	.61	.07	.78
[F(3,56) = 29.58, p<.000]					
Logging Native Forests					
Beliefs	.22	.28*			
Affects	.24	.32*	.21		.45
Behaviour	.02	.03	.24	.03	.49
[F(3,57) = 5.95, p<.05]					
Restriction Vehicle Emissions					
Beliefs	.03	.04			
Affects	.37	.43*	.16		.41
Behaviour	.08	.09	.13	.03	.37
[F(3,53) = 2.85, p<.05]					

N = 66. *, $p<.05$

5.4 Research Question Four

What are the affects and cognitions generated in response to each of the environmental issues?

5.4.1 Content Analysis

A content analysis was carried out to ascertain the type of response produced. From each table, it is evident that participants were able to identify and record emotions and beliefs relevant for them to each issue. Second, the content of the emotions and beliefs were then tallied to produce percentages of responses for each issue. Tables 5.9a to 5.11a only indicate affect response percentages greater than two percent .Tables 5.9b to 5.11b indicate the belief categories and the proportions of responses. A content analysis of emotions and beliefs in relation to them being rated by the respondents as negative or positive is contained in Appendix F.

Logging of Native Forests

Table 5.9a

Content Analysis of Emotions Logging of Native Forests

Issue	Emotion	Proportion
Logging Native Forests	Angry	18.0
	Sad	15.6
	Helpless	3.8
	Frustrated	2.8
	Total	40.7

Total emotions listed = 211, Total emotion classes = 84.

Table 5.9b

Content Analysis of Beliefs Logging of Native Forests.

	Belief Category	Proportion
For		
	Reduces jobs - reduce logging	15.7
	Protect specified areas	8.1
	Rebuild forests	4.1
	Need to	2.1
Against		
	Wildlife needs	20.2
	Wrong - can't be replaced	19.7
	Preserve nature - ecosystems	15.9
	Lose valuable asset	8.6
	Political moves	5.6

Restriction of Vehicle Emissions

Table 5.10a

Content Analysis of Emotions Restriction Of Vehicle Emissions

Issue	Emotion	Proportion
Restriction Vehicle Emission	Angry	10.1
	Helpless	4.1
	Happy	3.5
	Sad	3.5
	Worried	3.5
	Frustrated	2.9
	Positive	2.9
	Annoyed	2.3
	Total	33.3

Total emotions listed = 168, Total emotion classes = 88.

Table 5.10b

Content Analysis of Beliefs Emotions Restriction Of Vehicle Emissions.

Belief Category		Proportion
For		
	Increases pollution	40.8
	Protects nature	19.1
Against		
	Car expense	22.8
	Invasion of freedom	17.2

Urban Development

Table 5.11a

Content Analysis of Emotions Urban Development.

Issue	Emotion	Proportion
Urban Development	Angry	8.7
	Sad	7.7
	Annoyed	2.7
	Happy	2.3
	Confused	2.3
	Concerned	2.3
	Total	26.1

Total emotions listed = 218, Total emotion classes = 91.

Table 5.11b

Content Analysis of Beliefs Urban Development.

	Belief Category	Proportion
For		
	Have to live somewhere	20.6
	Depends on the site	12.6
	Great for tourism	6.6
Against		
	Preserve Nature	15.4
	Destroys wildlife	15.3
	No land for future	12.3
	Profit	6.0
	Promotes urbanisation	5.9
	Resorts develop	2.1
	Restricts access for others	2.0

5.5 Research Question Five

Are there differences in the number of affects and cognitions generated in relation to each environmental issue?

5.5.1 Dependent t-Tests

Dependant t-Tests were performed between the total number of emotions and total number of beliefs listed for each environmental issue. Results indicate that all t-tests were significant, with more beliefs than emotions elicited for each issue. (see Table 5.12).

Table 5.12

Dependant t-Tests Between The Total Number of Beliefs And Total The Number of Emotions For The Environmental Issues.

Issue	Mean E SD E	Mean B SD B	t	p
Logging Native Forests	3.35 2.2	4.24 1.6	3.39	.001
Urban Development	3.03 1.9	3.51 1.8	2.30	.025
Restriction of Vehicle Emissions	2.70 1.9	3.46 1.6	3.59	.001

N = 66. B = Belief; E = Emotion.

5.6 Summary

In relation to each environmental issue, the results indicate a number of different things. For the Restriction of Vehicle Emissions issue, only 16% of the variation in attitudes can be explained by cognition and affect. Of the two, affect is the single best predictor accounting for 11% of the variance when cognition is accounted for. The environmental behaviour scale does not contribute to our understanding of the variation for this particular issue. Respondents elicit significantly more beliefs than affects but when asked which is

most important to their attitude there is no significant difference between cognition and affect.

For Logging in Native Forests, both cognition and affect are reported as being independent significant predictors and together explain 21% of the variation in attitude. However, affect by itself does significantly contribute (7%) even after cognition is taken into account. Again more cognitions are significantly elicited, but respondents report that affect is most important to their attitude. The environmental behaviour scale does not contribute significantly to the variation in attitude toward Logging of Native Forests.

Lastly in relation to Urban Development, cognition remains the single best predictor with affect not contributing to the variation in attitude. When the environmental behaviour scale is added to the equation there is a significant increase in the variance explained (from 54% to 61%). However, again significantly more cognitions are elicited and respondents still significantly pick affect as more important to their attitude.

Results indicate that there were no difficulties in eliciting a number of beliefs and emotions. However, it is overwhelmingly clear that most of the cognitions and affects raised were rated negatively by the respondents.

These results will be discussed in the next chapter.

CHAPTER 6

DISCUSSION

This study investigated the affective and cognitive bases of attitudes toward different environmental issues. First, the relationship between affects and cognition and the attitudes towards the different issues will be reviewed. Second, the contribution of the general environmental behaviour scale will be discussed in relation to the environmental issues. Next a review will be made of the emotions and beliefs generated through the use of Eagly et al's. (1994) self elicitation technique, and finally the research and practical implications of the present study will be considered.

6.1 Predicting Attitudes from Affect and Cognition.

The first research questions asked whether affect and cognition independently and significantly predicted attitudes toward different environmnetyal and social issues. The present study sought to replicate Eagly et al's (1994) research in the social arena and to extend the model and methodology to examine the environmental arena. The results indicated that all social issues were predicted

independently and significantly by beliefs and emotions. With regard to each issue, Abortion on Demand was equally predicted by both emotions and beliefs; for Affirmative Action in Employment, both emotion and beliefs were significant predictors with beliefs being the strongest predictor; and for Welfare Assistance for the Poor, both emotions and beliefs were significant predictors with emotion being the strongest predictor.

In terms of the environmental issues, only one issue, Logging of Native Forests, was predicted independently and significantly by both emotions and beliefs. Restriction of Vehicle Emissions was significantly predicted by emotions and Urban development was significantly predicted by beliefs.

The results reflect Zanna and Rempel's (1988) argument, that an attitude need not be based on all three (cognition, affect and behaviour) classes of information. The results are also supported by other studies (Eagly et al. 1994: Esses et al. 1993) in the use and findings of the methodology for predicting attitudes from emotions and beliefs.

In comparing the present study's results to Eagly et al (1994), there are differences in terms of the proportion of variance in attitudes explained with the American population on average 10% less than the Western Australian population. This is important as one of the main criteria on which Eagly et al. (1994) chose the social issues, were that

they displayed variation in attitudes. Eagly et al. (1994) reported that the Abortion on Demand Issue indicated the greatest variation in attitude (SD =1.75), and therefore produced the greatest proportion of variance explained, and had greatest prediction. This was also the case in the present study. Beliefs and affects explained approximately 65% of the variation in attitudes, for Abortion on Demand and both beliefs and affects were unique predictors of the attitude. The other two social issues tended to rank similar, as in Eagly et al's. (1994) study, in terms of proportion of variance explained (Affirmative action .41 - .48, and welfare assistance .51 - .61), although in terms of the greatest unique predictors, the results differed.

Overall, Eagly et al. (1994) concluded that beliefs were the greatest contributor to attitudes, for all social issues. Even though present results explain on average 10% less of the variation in attitudes they suggest belief and emotion are equally important to the prediction of attitudes toward social issues.

The differences in the results of the two studies may reflect problems with the method which may not be appropriate for the two populations. The pilot study results did not indicate any difficulties with the methodology, nor did the content analysis of the main study results, participants easily indicated beliefs or emotions in relation to the issues. Beliefs did, however, significantly out number emotions for all of the

issues (see Table 5.12). Some participants did give written feedback about some of the issues, the social issues in particular. The general theme of the feedback was about the appropriateness of the terminology describing the social issues. It was noted that the some participants commented on the affirmative action issue indicating they did not understand what it meant. Another comment raised in relation to the third social issue was that " welfare assistance is so broad, what was it really referring to?". Whilist it can not be concluded that there are major differences between the two populations, there comments suggest there is a question about meanings of the issues and phrasing of the questions in relation to the Western Australian society.

6.2 Does Affect add to the Prediction of Environmental Attitudes

Further examination of the environmental issues using hierarchal regression indicated that, after taking into account the role of cognition, affect still significantly contributed to the total variance explained for the Restriction of Vehicle Emissions and the Logging of Native Forests. Affect was suggested as being an important factor in our interaction with the environment (Ulrich, 1983) and a key entry point for environmental education (Iozzi, 1989a,b). It can be concluded that in the present study affect is a significant contributor to the prediction of attitudes toward some environmental issues.

Subsidiary analysis supports the multiple regression results of the present study. Task five asked the participants to indicate what emotion or belief was most important to their attitude. Results indicated that for two issues (Urban Development and Logging Native Forests) affect was most important to their attitude, and for the other issue (Restriction of Vehicle Emissions) both cognition and affect were equally important. Task five attempted to 'double check' the prediction results as one of the criticisms of a self report affect measure is that potentially the respondents could cognitivise affect through the very process of naming the emotions they feel. As task five asks whether affect or cognition is more important to attitude, it alleviates some of the cognitivisation issues, and therefore it is encouraging to see a similarity in the results obtained from task five and the regressions.

The small variances explained by cognition and affect across all three issues is problematic. These results may be an indication of problems associated with averaging across emotions and beliefs for use in the prediction equation. It may also be the case that certain emotions and beliefs are directing (or are the bases of) an attitude, and the free response methodology cannot account for this. Eagly et al. (1994) and Esses et al. (1993) argued that the free response technique does address the problems of importance and weighting of responses as the technique engages salient beliefs and emotions. However, it still

cannot be assumed that respondents are not constructing their emotion and belief responses in light of their attitudes.

Another possible explanation is the validity of the attitude measurement itself. Esses et al. (1993) indicated that a one item attitude scale may not have been sufficient for measuring attitudes. However, Stangor et al. (1991) argued that a one item attitude/evaluation scale is sufficient as the attitude is a summary evaluation. The addition of any other related dimensions may even be confusing and may be construed as a belief or emotion item rather than an attitude item. Stangor et al. (1991) did suggest that a one item attitude score would affect the amount of variation being explained.

An overarching issue may be relationship between affect and cognition. Many researchers (Eagly et al. 1994; Eagly and Chaiken, 1993; Esses et al. 1993) refer to this relationship as the synergistic relationship of affect and cognition. Esses et al. (1993) argued, in relation to their study, that the role of stereotypes is in part determined by one's emotional reaction to members of other groups. In other words, the characteristics of social groups may influence the emotions toward that social group and thus the evaluation/ attitude toward the same group. Esses et al. (1993) developed this argument to account for affect being the single unique predictor of attitudes toward social groups, yet it is still correlated with cognition for stereotypes.

Examination of the correlations in the present study (see Table 5.4) indicated moderate to high correlations for almost all emotion and belief scores. Eagly and Chaiken (1993) argued that these results are indicative of a synergistic relationship suggesting that the attribution of effects to one informational source is difficult as cognition and affect more often produce effects contributable to their combination. That is, even though the present study indicates that attitudes toward certain issues can be predicted from affects or cognitions, it cannot be generally stated that attitudes derive mainly from one source (Eagly et al. 1994).

On the other hand, Wilson, Dunn, Kraft & Lisle (1989a) and Wilson, Lisle, Kraft & Wetzel (1989b) argued that attitudes may form mainly from one particular source, however, situations and experiences in turn influence emotions and cognitions which in turn influence attitudes. People's attitudes, whether affectively or cognitively based will be influenced by subsequent beliefs and emotions because of the relationship between the variables (Eagly et al. 1994). Further to this, Wilson et al. (1989a,b) and Edwards (1990) speculated that attitudes need to be considered as evolving through a developmental process. When respondents first encounter an attitude object they have little or no knowledge about the attitude object, therefore, the attitudes they

possess are likely to be affectively based as no analysis has taken place.

Through the process of becoming more knowledgable about the attitude object, respondents are likely to think about their attitude and recognise their positive and negative thoughts, feelings and experiences in relation to the object, thus the cognitive bases of the attitude becomes more salient. Once this elaborate attitude to the object has been developed, the attitude is thought to revert to being affectively based because of the primacy of affect, the ease of accessibility and the immediacy of an affective response. When the attitude has been formed at this end of the continuum there is no need for the individual to identify the reasons for their attitude thus an affective response saves time and energy.

It could be argued that the results of the present study represent points along this developmental continuum. The differences in the bases of the attitudes toward the issues, could represent the development of the attitudes toward the issues , in the Western Australian population. In other words, the affectively based issues could be those that the present population knows little about, or have developed so thoroughly that they have returned to the affectively based position. On the otherhand, the cognitive based issues may represent those issues about which people are currently analysing and

thinking through. Those issues that are both affectively and cognitively based are issues that are currently changing from one base to another.

This model would need extensive testing as it is based on only a few small studies by Wilson et al. (1989a,b) and Edwards (1990). What is interesting is the idea that the bases of attitudes may change, as argued by Zanna and Rempel (1988), and Eagly et al. (1994), and that there may be a developmental aspect to the changes (Wilson et al. 1989a,b; Edwards, 1990).

Finally, Eagly et al. (1994) and Esses et al. (1993) argued that the free response technique needs further refinement and that this may account for some of the variation in attitude that has not been explained. Esses et al. (1993) further proposed that the unexplained variance may be due to other factors. They suggested that the major factor was that the behavioural information source was not included as a predictor (Eagly et al. 1994; Esses et al. 1993) in their studies.

6.3 Does Behaviour add to the Prediction of Attitudes

Within the present study a general environmental behaviour scale was included. Further analysis indicated that the environmental behaviour scale contributed significantly to the variance explained only for the Urban Development issue (54% to 61%). The other two environmental issues were not significantly predicted by the

environmental behaviour scale, nor did the inclusion of the behaviour scale significantly explain more of the variation in attitudes.

The environmental behaviour scale was considered to be a general scale as it asked questions regarding the respondents general level of participation in environmental issues, and therefore, was not specifically linked to any of the environmental issues. This scale was developed by Eagly (1995) for use with social issues and was adapted to the environmental issues for the present study. Eagly and Chaiken (1993) argued that in order to predict behaviour from attitudes, both scales (attitude and behaviour) need to be specific or both general. That is, a general attitude is a better predictor of a general tendency to engage in behaviours within that attitude domain. A specific attitude is better predicted from behaviours specific to the attitude object. In the present study, a general measure of environmental behaviour was used across specific environmental issues, and thus behaviour was only found to be predictive of one out of three issues. Kallgren and Wood (1986) and Esses et al. (1993) argued that a similar type of measurement for all three measures may be more appropriate than using different types of measures as has been done in the present study.

Therefore, the behavioural measure utilised in the present study needs further development to address the generality issue, and/or the

introduction of a more appropriate measurement technique. Such a technique accompany the free response technique and be utilised with other sources of information.

Finally, the explanation for the different results obtained in the present study may relate to the sample used. The sample was made up of volunteers from the student population of which two thirds were third year psychology students. This could have some effect on the results, given that all third years would have completed units in social psychology and attitude theory, and, therefore, should have been more cognisant of this area of psychology. The fact that the participants volunteered may also suggest that people inherently interested in the area responded. Although, in relation to the environmental domain, the behaviour scale results indicate that no one person characterised themselves as an environmental activist (see page 84).

The generalisablitiy of these results, beyond a student population, is doubtful due to the nature of the sample. It is also important to note that the sample was two thirds female and this must be taken into consideration when examining all of the results. Eagly et al. (1994) found significant gender differences in the attitudes toward all three social issues. However, they did not then carry out separate regression analyses on the gender groups. In the present study the sample size (N=66) and composition (19 males and 47 females)

prevented any meaningful gender analysis. As emotion is often regarded as a feminine trait, further studies need to include gender as a variable. Possibly the gender bias in the present example accounts for the resulting increased role of affect in the social issues, compared to Eagly et al's. (1994) results where gender was more evenly distributed.

6.4 Examination of Affects and Cognitions Generated.

Examination of the beliefs and emotions generated by the participants may give an indication about the bases of the attitude. What is clearly evident is that the participants were able to respond appropriately with an array of emotions and beliefs (see section 5.3 of the results). There were between 81-100 different classes of emotion listed for the different issues. What is interesting to note about the emotions is that they were predominantly negative, both in terms of the emotion and the rating participants gave to the emotion. What is also noticeable is that the more positive or negative the attitude, the more positive or negative are the emotions.

In terms of the belief categories, these ranged between 4-11 depending upon the issue. What is immediately noticeable about the beliefs is that they naturally fell into a for/against criteria. This may have been influenced by the attitude measurement task (opposed to/in favour of). However, it does indicate that both for and against beliefs

can be held at the same time. The same could also be said about holding both positive and negative emotions toward an attitude object. This phenomenon, known as ambivalent attitudes, has recently emerged in the attitude literature (Thompson, Zanna & Griffin, in press).

It is also apparent that when an attitude is positive or negative then the beliefs are predominantly consistent with the evaluation. Given the criticism that it is still possible for respondents to construct their responses in line with their attitudes when using the free response technique, it is also important to consider that participants are not forced to respond to any given set of information. A a valid conclusion, therefore, is that the participants are responding with salient beliefs and emotions.

Given the total amount of emotions and beliefs generated by the free response technique, it seems unlikely one would not be highly restricted by using standard checklists in these type of attitude studies. It could be argued that the free response methodology is still more defensible than standard measures.

6.4 Practical and Research Implications.

1. The results suggest that affect and cognition both need to be taken into account if there is a need to change environmental attitudes.

2. Information attained from this study about attitudes towards environmental issues needs to be incorporated into environmental education programs as they may need to address both emotions and beliefs informing the issues they are working with.

3. The replication of Eagly et al. (1994) has further substantiated the model and free response methodology as a legitimate ways to study attitudes. This needs further replication and exploration. One criticism that has been raised in relation to the attitude literature (Zanna, 1995) and the environmental literature (Van Liere & Dunlap, 1980) is the lack of research replicating previous studies.

4. There are issues specific to the sample used in the present study, and to other attitude studies such as Eagly et al. (1994) and Esses et al. (1993). Some of these issues are the type and composition of the participants. In all of these studies the participants were university students which makes generalisation to the general population difficult. It may also be indicative of the type of responses received as the participants are mostly psychology students and thus may have an inherent bias to studies of this nature. Gender has not been addressed in the present study nor adequately addressed in Eagly et al. (1994) or Esses et al. (1993). Future studies would possibly need to address these concerns if only to exclude them as possible issues.

5. In terms of the methodology used in the present study, there appears to be no other technique that can elicit salient beliefs and emotions as easily as the free response method. However, there are difficulties attributed to the self report nature of the methodology and to the cognitivisation of affect in terms of participants being able to recognise and write down what they are feeling. Future research may need to look at more accurate ways of measuring affect in the prediction of attitudes.

6. Another important area for future researchers is in determining the nature and influence of the synergistic relationship of cognition and affect and in turn an understanding of the formation and progression of attitudes. At present, knowledge about the synergistic relationship leads to the assumption that both cognition and affect must be addressed when examining attitude structure (Eagly et al. 1994). The accuracy of this assumption will be an important avenue for future understanding.

7. Further to this, behaviour, the third source of information has not been mentioned as being involved in this synergy. Behaviour, in the Zanna and Rempel (1988) framework, is often neglected because of the ambiguity of its relationship to attitude. This will no doubt remain a viable area for future attitude research. A more

relevant behaviour scale or technique is most notably needed for the present study.

6.5 Future Research Directions.

There are a number of avenues for future research raised by the present study. Zanna (1995) argued that to further understand the attitude concept it is imperative that attitude research is carried out in specific domains. The concept cannot develop further unless the substantive domain is recognised as an important factor in the determination of attitudes. This study supports their conclusion.

The developmental continuum of attitudes is an area that needs further substantiation. The attitude and behavior relationship was not a central feature of this thesis and could be an area of future research. It is important to note that the speculations presented in the thesis did not indicate anything about the role of behaviour.

6.6 Conclusions

This study provided a test of the attitude model by Zanna and Rempel (1988) and a test of the free response methodology by Eagly et al. (1994) in the environmental arena.

The research established that both cognition and affect are independent and significant predictors of attitudes toward Logging of Native Forests; beliefs are significant predictors of attitudes toward

Urban Development; and emotions are significant predictors to attitudes toward the restriction of vehicle emissions.

These results indicate that both beliefs and emotions need to be taken into account in the environmental arena. In terms of the importance of attitudes in environmental studies, the present study indicates that a clear understanding of the variables and models being used is paramount. This research also indicates that affect does have an important role to play in environmental studies. It would seem that merely indicating the bases of attitudes to environmental issues will not address the shortcomings of many environmental programs and studies, however, by drawing together attitude models and different substantive domains psychology goes along way to understanding more about attitudes and more about the substantive domain. In light of the synergistic relationship between cognition and affect any further investigation of attitudes cannot afford to neglect either cognition or affect.

The final word relates to our understanding of our interaction with the environment. The present study considers that attitude theory and in particular Zanna and Rempels' (1988) model, provides a way of psychology becoming involved in the ongoing debate about our global environment.

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Appendix A

Percetions of Environmetnal Issues
The Pilot Study

Perceptions of Environmental Issues

Attitude Laboratory

Edith Cowan University

1995

You will be asked to complete several tasks in this questionnaire. Please read and complete all tasks carefully. Please complete each task in the order it is presented.

TASK 1

The first task is asking you about your attitude to certain issues. To complete this task you need to read the issue and then circle, on the scale provided next to the issue, which number best represents your attitude.

FOR EXAMPLE

What is your attitude toward.....(Please circle your response).

	Opposed to						In Favour of
Abortion on Demand	-3	-2	-1	0	1	2	3

If you were strongly opposed to this then you would circle -3. If you were strongly in favour then circle +3.

Please go on to the task.

What is your attitude toward.....(Please circle your response).

	Opposed to						In Favour of
Issue One	-3	-2	-1	0	1	2	3
Issue Two	-3	-2	-1	0	1	2	3
Issue Three	-3	-2	-1	0	1	2	3
Issue Four	-3	-2	-1	0	1	2	3
Issue Five	-3	-2	-1	0	1	2	3
Issue Six	-3	-2	-1	0	1	2	3

TASK 2

Instructions

This task is asking about what you believe to be true about the issues that you just rated. Please write down what you believe about the issue or the effects of the issue. For example, you may have some ideas about who supports the issue. Just think about the issue for a few moments and then write down whatever you think is true about the issue. There will be several boxes for you to write in, write one belief in each box. You have 10 boxes for each issue, this does not mean you have to write 10 beliefs for each issue. Write as many beliefs that you think are important. Up to 10 beliefs for each issue.

Next to each of your beliefs please indicate, on the scale provided, if this belief leads you to be favourable or unfavourable to the issue.

unfavourable favourable

-3 -2 -1 0 1 2 3

There are no right or wrong answers you are merely writing down and rating what you believe about the issue.

FOR EXAMPLE

For the issue of ***Abortion on Demand*** boxes would appear as follows. In the first box you may write

I believe --	This belief leads me to be unfavourable--- favourable
Life is sacred	-3 -2 -1 0 +1 +2 +3 to Abortion on Demand..

and circle moderately unfavourable -2.

In the second box you may write

I believe --	This belief leads me to be unfavourable--- favourable
It is the womans choice	-3 -2 -1 0 +1 +2 +3 to Abortion on Demand.

and circle slightly favourable +1.

NOW PLEASE CONTINUE OVER THE NEXT PAGE

Issue One

Please list UP TO 10 beliefs that you have about this issue and rate them.

I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.

Issue Two

Please list UP TO 10 beliefs that you have about this issue and rate them.

I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two..
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two..
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two..
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two..
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two..
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two..
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two.

Issue Three

Please list UP TO 10 beliefs that you have about this issue and rate them.

I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three..
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three..
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three..
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three..
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three..
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three..
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three..
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three.

Issue Four

Please list UP TO 10 beliefs that you have about this issue and rate them.

I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.

Issue Five

Please list UP TO 10 beliefs that you have about this issue and rate them.

I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.

Issue Six

Please list UP TO 10 beliefs that you have about this issue and rate them.

I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.

TASK 3

Demographic Information

1. Gender : Male ☐ Female ☐

2. Age: _____
(Please Write in years)

3. What is your Political Orientation:

Labour ☐
Liberal ☐
Democrats ☐
National ☐
Greens ☐
Independent ☐
Greypower ☐
Other (Please Specify)_____

Please circle:

	Strongly agree				Strongly disagree
5. Regulation of business by government usually does more harm than good.	SA	A	N	D	SD
6. Government regulation and planning leads to bureaucracy, inefficiency, and stagnation.	SA	A	N	D	SD
7. The government has too much power of citizens.	SA	A	N	D	SD
8. The government should not interfere with the free enterprise system.	SA	A	N	D	SD
9. Government planning inevitably results in the loss of essential liberties and freedoms.	SA	A	N	D	SD

TASK 4

Instructions

This task is asking about what you feel about the issues presented in tasks 1&2. Please write down the emotions that you experience in relation to the issue. Take a moment to reflect on the issue and try to put into words the actual feelings that you experience.
There will be several boxes for you to write in. Write one feeling in each box. You have 10 boxes for each issue, this does not mean you have to write 10 emotions for each issue. Write as many emotions that you feel are important. Up to 10 emotions for each issue.

Next to each of your emotions please indicate, on the scale provided, if this emotion leads you to be favourable or unfavourable to the issue.

unfavourable favourable

-3 -2 -1 0 1 2 3

There are no right or wrong answers your merely writing down and rating what you feel about the issue.

FOR EXAMPLE

For the issue of ***Abortion on Demand*** boxes would appear as follows.
In the first box you may write

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourabl -3 -2 -1 0 +1 +2 +3 to Abortion on Demand..
Anger	

and circle slightly unfavourable -1.

In the second box you may write

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand...
Relief	

and circle moderately favourable +2.

NOW PLEASE CONTINUE OVER THE NEXT PAGE

Issue One

Please list UP TO 10 emotions that you have about this issue and rate them.

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue One.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable

Issue Two

Please list UP TO 10 emotions that you have about this issue and rate them.

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Two.

Issue Three

Please list UP TO 10 emotions that you have about this issue and rate them.

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three..
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three..
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three..
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three..
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three..
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three..
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Three.

Issue Four

Please list UP TO 10 Emotions that you have about this issue and rate them.

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Four.

Issue Five

Please list UP TO 10 emotions that you have about this issue and rate them.

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable— favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable— favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Five.

Issue Six

Please list UP TO 10 emotions that you have about this issue and rate them.

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Issue Six.

TASK 5

Could you indicate for each issue which belief or emotion is most important to your attitude for that particular issue.

FOR EXAMPLE

Abortion on Demand **-- Anger**

If this statement is the most important belief or emotion that drives your attitude then write it down on the line provided.

PLEASE CONTINUE ON WITH THE TASK

Issue One -- _____

Issue Two -- _____

Issue Three -- _____

Issue Four -- _____

Issue Five -- _____

Issue Six -- _____

TASK 6

Activities related to the Issues

1. Have you ever donated money to groups that support or oppose environmental issues? Yes ☐ No ☐

2. Have you ever attended a meeting at which environmental issues were the focus of the discussion? Yes ☐ No ☐

3. Have you ever joined an organisation concerned with environmental issues? Yes ☐ No ☐

4. Have you ever written to your local MP about environmental issues? Yes ☐ No ☐

5. Have you ever visited the office of your local MP to discuss environmental issues? Yes ☐ No ☐

6. Have you ever written a letter to the editor about environmental issues? Yes ☐ No ☐

7. Have you ever phoned your local MP about environmental issues? Yes ☐ No ☐

8. Have you ever participated in a rally or march for environmental issues? Yes ☐ No ☐

9. Have you ever discussed environmental issues with a friend? Yes ☐ No ☐

10. Have you ever discussed environmental issues with a family member? Yes ☐ No ☐

11. Have you ever discussed environmental issues in a university class? Yes ☐ No ☐

12. Have you ever sought out an article or book to read on environmental issues? Yes ☐ No ☐

13. Have you ever listened to a radio or TV discussion on environmental issues? Yes ☐ No ☐

14. Do you consider yourself an "activist" on environmental issues? Yes, definitely ☐ To some extent ☐ No ☐

THANKYOU FOR COMPLETING THE SURVEY

Perception of Environmental Issues Laboratory

Issue One	Vehicle Emissions.
Issue Two	Protection of Native flora.
Issue Three	Protection of Native Fauna.
Issue Four	Development of landsites (wetlands, bushlands, rural , coastal) for future use.
Issue Five	Reducing the amount of waste.
Issue Six	Logging of Native Forests.

Appendix B

Examples of Emotion and Beliefs from the Pilot Study

Table 1

Examples of Emotions and Beliefs.

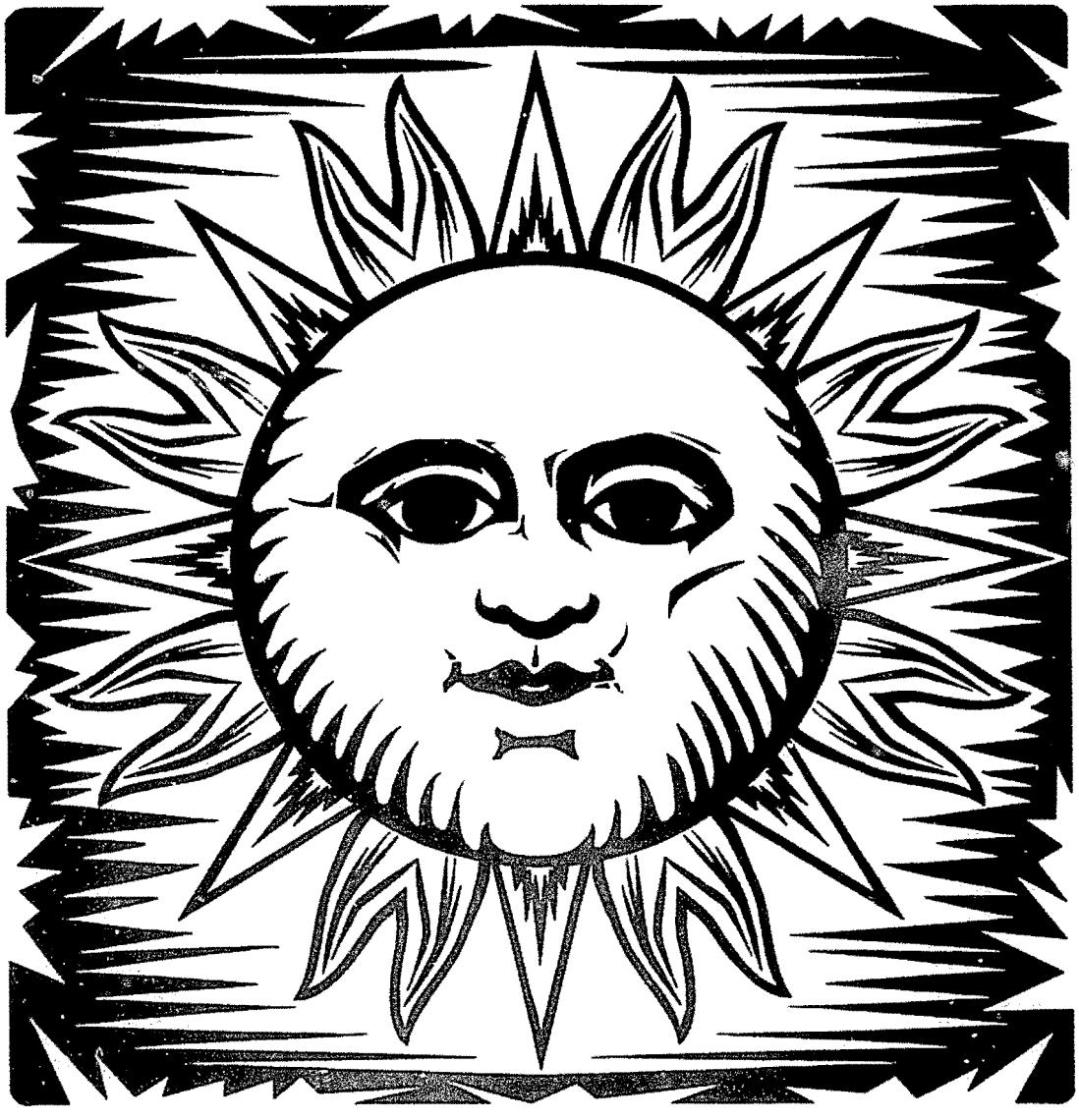
Issue	Emotions	Beliefs
Vehicle Emissions	Sick Angry Perplexed	Are Gross Bad for Environment From where?
Protection of Native Flora	Happy Concerned Good	Protect habitats Enjoy the picture For tourism
Protection of Native Fauna	Sad Angry Positive	For endangered species For the future For the ecosystem
Urban Development	Annoyed Angry Amazed	Ruins the beach Nowhere for wildlife Where else do I live
Reducing Waste	Happy Content	Helps Recycling Global trash piles up
Logging of Native Forests	Anger Despair Sadness	Homes for wildlife Destroys nature Sick of hearing about it

Appendix C

Percetions of Social and Environmetnal Issues

The Main Study

Perceptions of Social and Environmental Issues



Julie Ann Pooley
Edith Cowan University

1995

Thank you for participating in this study. Your participation is completely anonymous and confidential and is not associated with any of your assessed work in any unit.

You will be asked to complete several tasks in this questionnaire. Please read and complete all tasks carefully. Please complete each task in the order it is presented.

TASK 1

The first task is asking you about your attitude to certain issues. To complete this task you need to read the issue and then circle, on the scale provided next to the issue, which number best represents your attitude.

FOR EXAMPLE

What is your attitude toward.....(Please circle your response).

	Opposed to						In Favour of
Commercial Whaling	-3	-2	-1	0	1	2	3

If you were strongly opposed to this then you would circle -3. If you were strongly in favour then circle +3.

Please go on to the task.

What is your attitude toward.....(Please circle your response).

	Opposed to						In Favour of
Abortion on Demand	-3	-2	-1	0	1	2	3
Affirmative Action in Employment	-3	-2	-1	0	1	2	3
Welfare Assistance for the Poor	-3	-2	-1	0	1	2	3
Logging of Native Forests	-3	-2	-1	0	1	2	3
Resrtiction of Vehicle Emissions	-3	-2	-1	0	1	2	3
Developing landsites (bushland, wetland, coastal rural) for future use.	-3	-2	-1	0	1	2	3

TASK 2

Instructions

This task is asking about what you believe to be true about the issues that you just rated. Please write down what you believe about the issue or the effects of the issue. For example, you may have some ideas about who supports the issue. Just think about the issue for a few moments and then write down whatever you think is true about the issue. There will be several boxes for you to write in, write one belief in each box. You have 10 boxes for each issue, this does not mean you have to write 10 beliefs for each issue. Write as many beliefs that you think are important. Up to 10 beliefs for each issue.
Next to each of your beliefs please indicate, on the scale provided, if this belief leads you to be favourable or unfavourable to the issue.

unfavourable favourable

-3 -2 -1 0 1 2 3

There are no right or wrong answers you are merely writing down and rating what you believe about the issue.

FOR EXAMPLE

For the issue of ***Commercial Whaling*** boxes would appear as follows. In the first box you may write

I believe --		This belief leads
me to be favourable	It is inhumane	unfavourable--- -3 -2 -1 0 +1 +2 +3 to Commercial Whaling.

and circle moderately unfavourable -2.
In the second box you may write

I believe --		This belief leads
me to be favourable	There may be scientific value	unfavourable--- -3 -2 -1 0 +1 +2 +3 to Commercial Whaling.

and circle slightly favourable +1.

NOW PLEASE CONTINUE OVER THE NEXT PAGE

Abortion on Demand

Please list UP TO 10 beliefs that you have about this issue and rate them

I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand
I believe -- +3	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 to Abortion on Demand
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand.

Affirmative Action in Employment

Please list UP TO 10 beliefs that you have about this issue and rate them.

I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.

Welfare Assistance for the Poor

Please list UP TO 10 beliefs that you have about this issue and rate them.

I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor.

Logging of Native Forests

Please list UP TO 10 beliefs that you have about this issue and rate them.

I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging of Native forests
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging of Native forests
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging of Native forests
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging of Native forests
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging of Native forests
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging of Native forests
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging of Native forests
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging of Native forests
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging of Native forests
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging of Native forests

Resrtiction of Vehicle Emissions

Please list UP TO 10 beliefs that you have about this issue and rate them.

I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions.
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions
I believe --	This belief leads me to be unfavourable— favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions
I believe --	This belief leads me to be unfavourable— favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions

Development of landsites (bush, wet, coastal, rural) for future use.

Please list UP TO 10 beliefs that you have about this issue and rate them.

I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites..
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites ..
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites.....
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites.....
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites.....
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites. .
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites.....
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites.....
I believe --	This belief leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites.....

TASK 3

Demographic Information

1. Gender : Male ☐ Female ☐

2. Age: _____ (Please Write in years)

3. Year of Study: 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ Hons ☐ P/Grad ☐

4. What is your Political Orientation:
Labour ☐
Liberal ☐
Democrats ☐
National ☐
Greens ☐
Independent ☐
Greypower ☐
Other (Please Specify)_____

Please circle:

Strongly disagree ... Strongly agree

5. Regulation of business by government usually does more harm than good.	SA	A	N	D	SD
6. Government regulation and planning leads to bureaucracy, inefficiency,. and stagnation	SA	A	N	D	SD
7. The government has too much. power of citizens	SA	A	N	D	SD
8. The government should not interfere with the free enterprise system.	SA	A	N	D	SD
9. Government planning inevitably results in the loss of essential liberties and freedoms.	SA	A	N	D	SD

TASK 4

Instructions

This task is asking about what you feel about the issues presented in tasks 1&2. Please write down the emotions that you experience in relation to the issue. Take a moment to reflect on the issue and try to put into words the actual feelings that you experience.
There will be several boxes for you to write in. Write one feeling in each box. You have 10 boxes for each issue, this does not mean you have to write 10 emotions for each issue. Write as many emotions that you feel are important. Up to 10 emotions for each issue.
Next to each of your emotions please indicate, on the scale provided, if this emotion leads you to be favourable or unfavourable to the issue.

unfavourable favourable

-3 -2 -1 0 1 2 3

There are no right or wrong answers your merely writing down and rating what you feel about the issue.

FOR EXAMPLE

For the issue of ***Commercial Whaling*** boxes would appear as follows. In the first box you may write

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable
sadness	-3 -2 -1 0 +1 +2 +3 to Commercial Whaling,.

and circle slightly unfavourable -1.

In the second box you may write

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable
encouraged	-3 -2 -1 0 +1 +2 +3 to Commercial Whaling.

and circle moderately favourable +2.

NOW PLEASE CONTINUE OVER THE NEXT PAGE

Abortion on Demand

Please list UP TO 10 emotions that you have about this issue and rate them.

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Abortion on Demand.

Affirmative Action in Employment

Please list UP TO 10 emotions that you have about this issue and rate them.

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Affirmative Action in Emp.

Welfare Assistance for the Poor

Please list UP TO 10 emotions that you have about this issue and rate them.

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 3 to Welfare Assistance for Poor.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Welfare Assistance for Poor.

Logging of Native Forests

Please list UP TO 10 Emotions that you have about this issue and rate them.

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging Native forests
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging Native forests
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging Native forests
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging Native forests
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging Native forests.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging Native forests.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging Native forests.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging Native forests.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging Native forests.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Logging Native forests.

Restriction of Vehicle Emissions

Please list UP TO 10 emotions that you have about this issue and rate them.

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Vehicle Emissions.

Development of landsites (bush, wet, coastal, rural) for future use.

Please list UP TO 10 emotions that you have about this issue and rate them.

When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites.
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites. .
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- avourable -3 -2 -1 0 +1 +2 +3 to Development of landsites ....
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites. .
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites.....
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites... .
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites.....
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites.....
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of landsites.....
When I reflect on this issue I feel--	This emotion leads me to be unfavourable--- favourable -3 -2 -1 0 +1 +2 +3 to Development of andsites.....

TASK 5

Could you indicate for each issue which belief or emotion is most important to your attitude for that particular issue.

FOR EXAMPLE

Commercial Whaling -- Sadness

If this statement is the most important belief OR emotion that drives your attitude then write it down on the line provided.

PLEASE CONTINUE ON WITH THE TASK

Abortion on Demand --_____

Affirmative Action in Employment --_____

Welfare Assistance for the Poor --_____

Logging of Native Forests --_____

Restriction of Vehicle Emissions --_____

Development of landsites (bush, wet coastal, rural) for future use. --_____

TASK 6

Activities related to the Issues

1.	Have you ever donated money to groups that support or oppose environmental issues?	Yes No	☐ ☐
2.	Have you ever attended a meeting at which environmental issues were the focus of the discussion?	Yes No	☐ ☐
3.	Have you ever joined an organisation concerned with environmental issues?	Yes No	☐ ☐
4.	Have you ever written to your local MP about environmental issues?	Yes No	☐ ☐
5.	Have you ever visited the office of your local MP to discuss environmental issues?	Yes No	☐ ☐
6.	Have you ever written a letter to the editor about environmental issues?	Yes No	☐ ☐
7.	Have you ever phoned your local MP about environmental issues?	Yes No	☐ ☐
8.	Have you ever participated in a rally or march for environmental issues?	Yes No	☐ ☐
9.	Have you ever discussed environmental issues with a friend?	Yes No	☐ ☐
10.	Have you ever discussed environmental issues with a family member?	Yes No	☐ ☐
11.	Have you ever discussed environmental issues in a university class?	Yes No	☐ ☐
12.	Have you ever sought out an article or book to read on environmental issues?	Yes No	☐ ☐
13.	Have you ever listened to a radio or TV discussion on environmental issues?	Yes No	☐ ☐
14.	Do you consider yourself an "activist" on environmental issues?	Yes, definitely To some extent No	☐ ☐ ☐

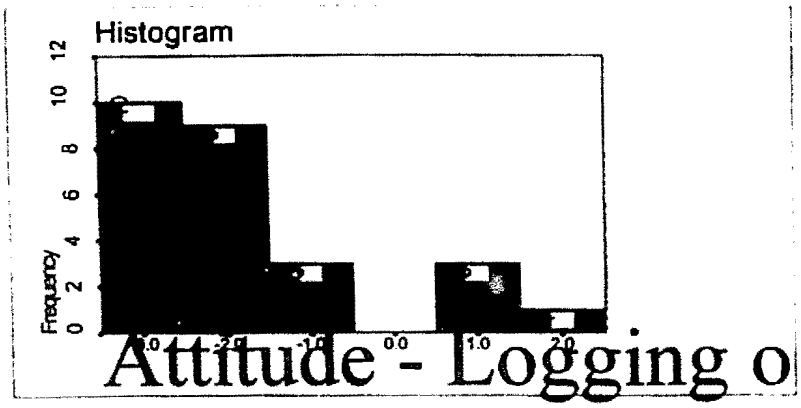
THANKYOU FOR COMPLETING THE SURVEY

Appendix D

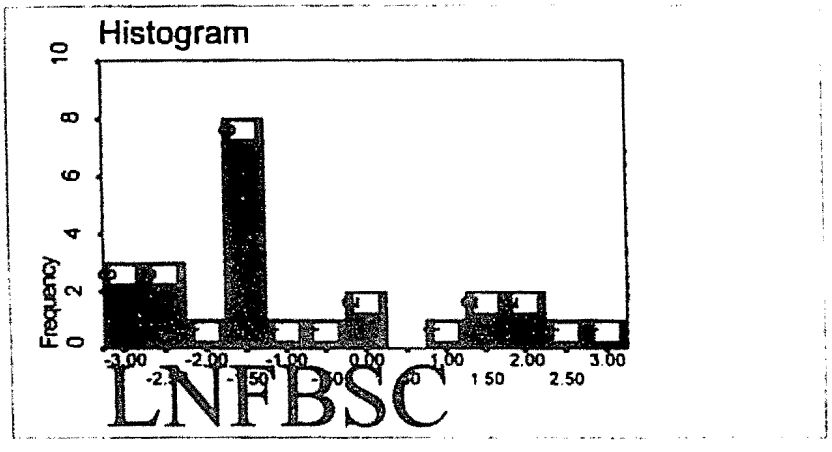
Historgams for the Six Issues for the Pilot Study

Logging Of Native Forests

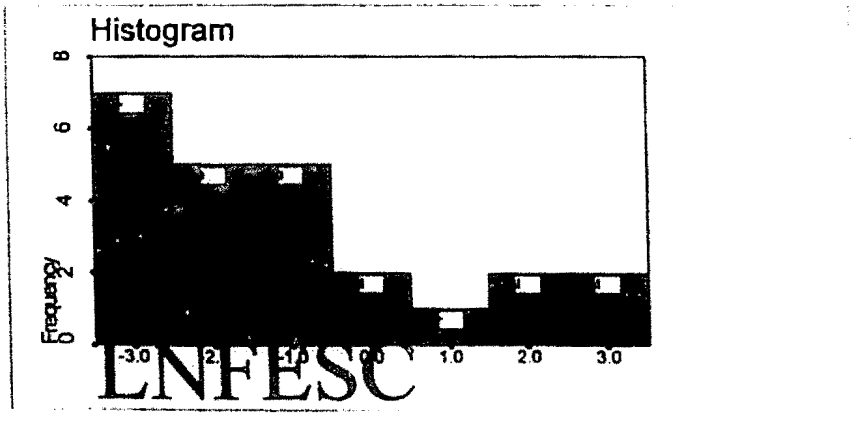
Attitude Scale Scores



Belief Scale Scores

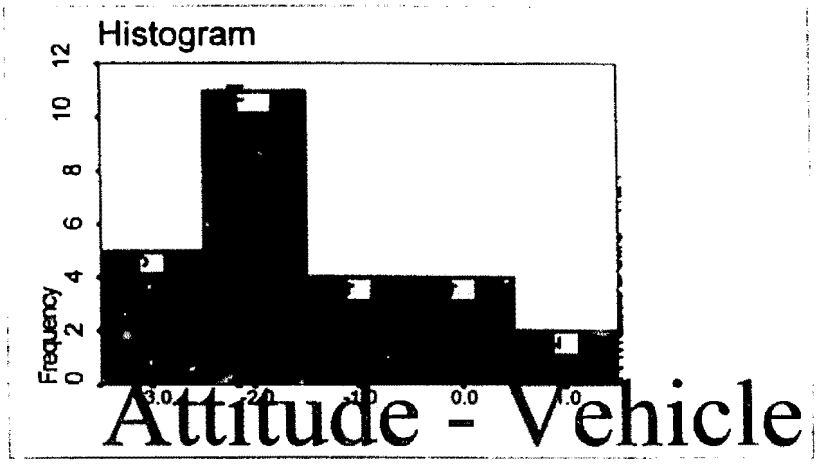


Emotion Scale Scores

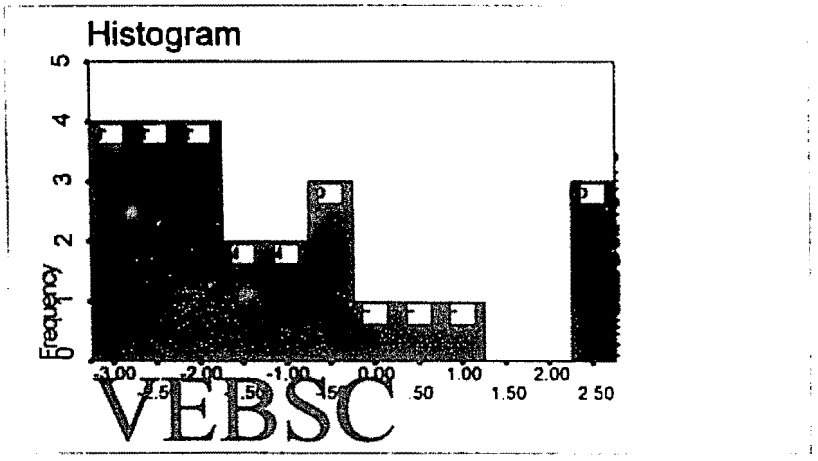


Restriction of Vehicle Emissions

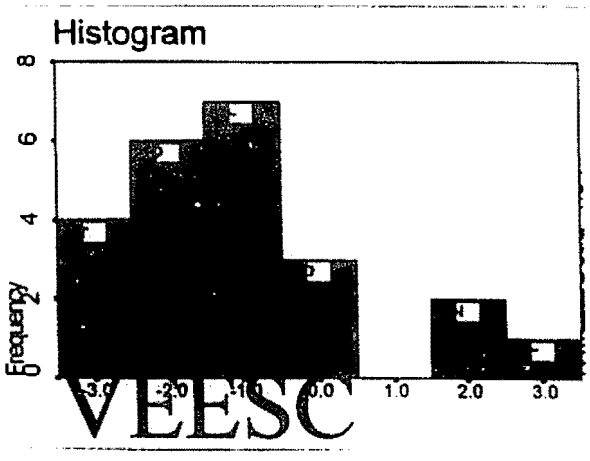
Attitude Scale Scores



Belief Scale Scores

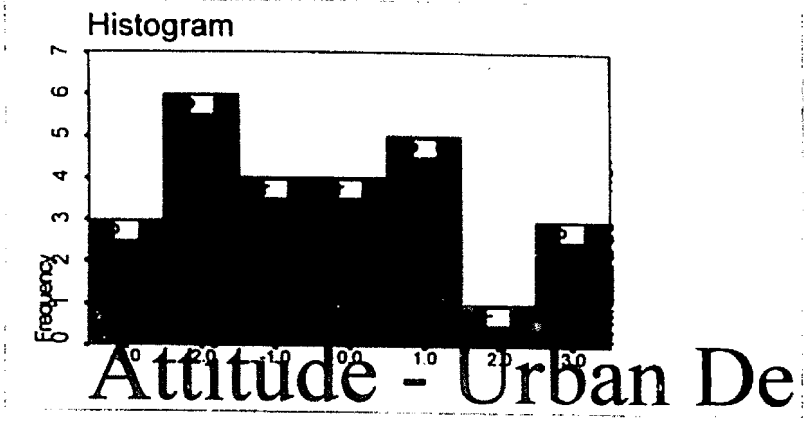


Emotion Scale Scores

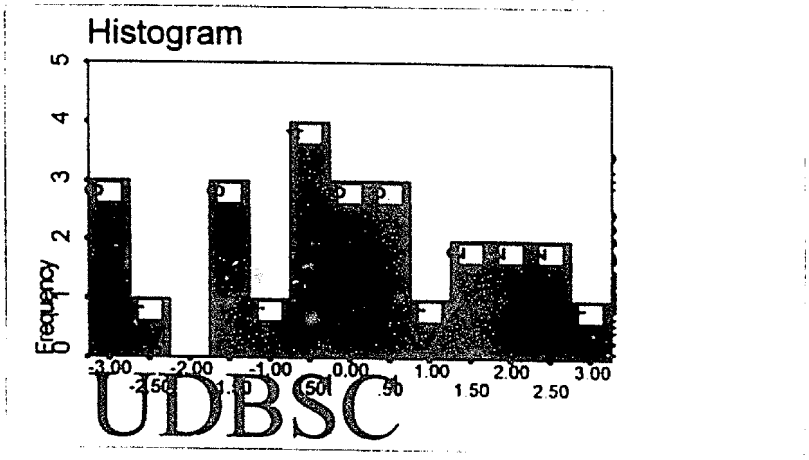


Urban Development

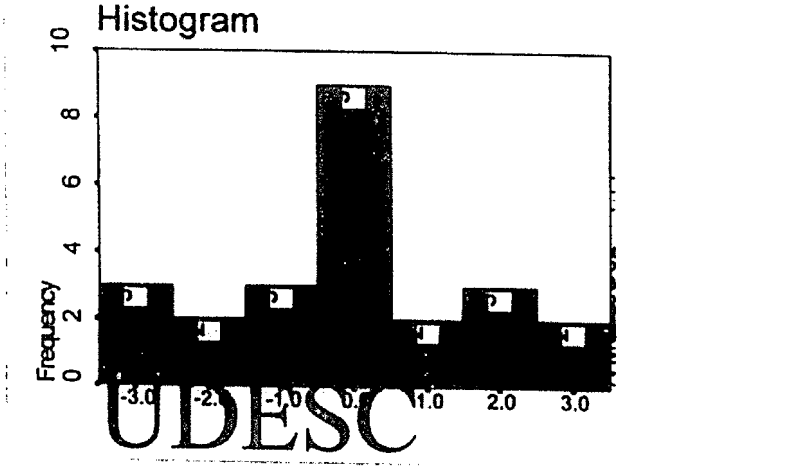
Attitude Scale Scores



Belief Scale Scores

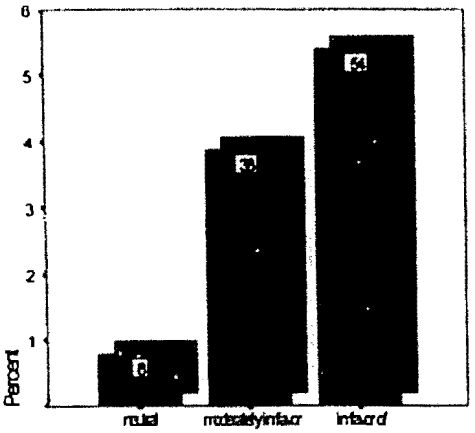


Emotion Scale Scores

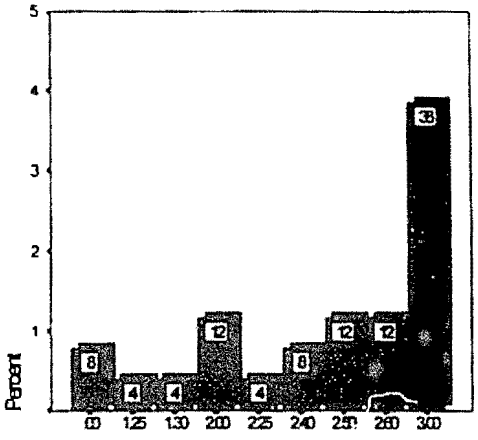


Protection of Native Flora

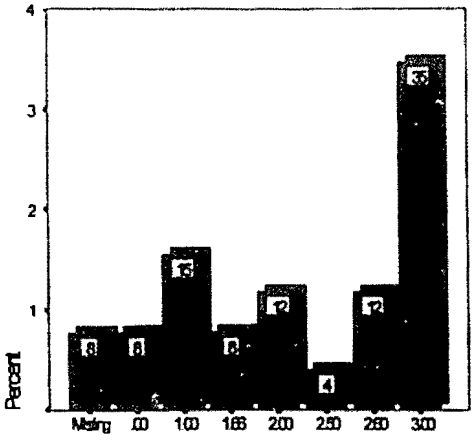
Attitude Scale Scores



Belief Scale Scores

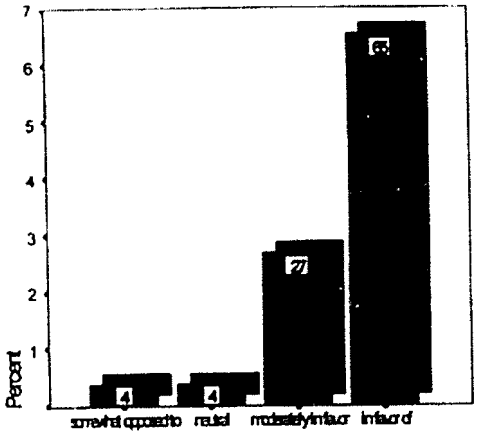


Emotion Scale Scores

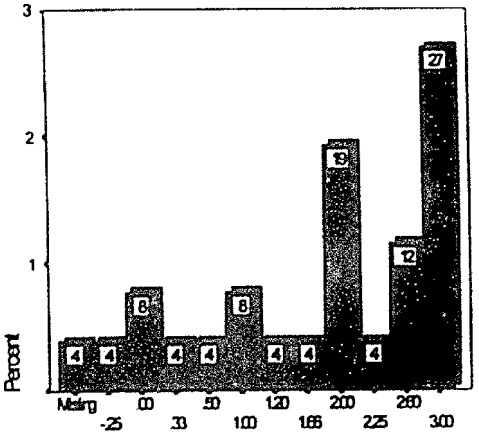


Protection of Native Fauna

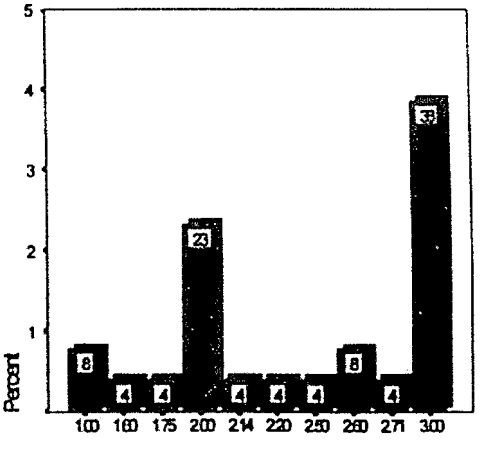
Attitude Scale Scores



Belief Scale Scores

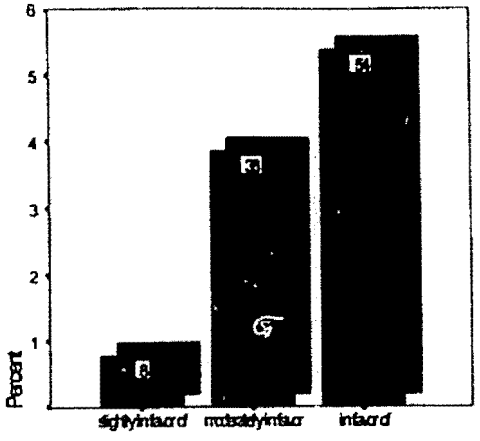


Emotion Scale Scores

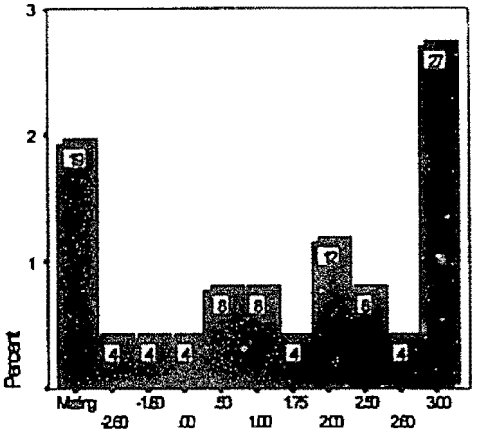


Reducing the Amount of Waste

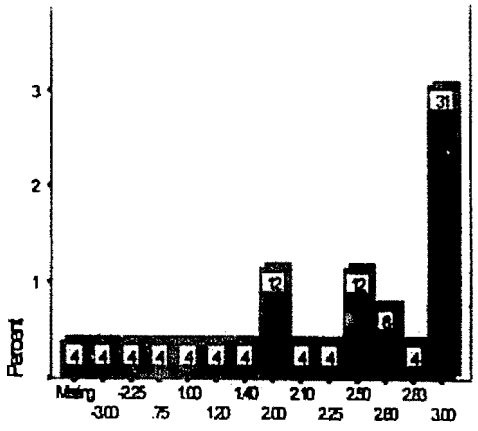
Attitude Scale Scores



Belief Scale Scores



Emotion Scale Scores



Appendix E

Emotion Classes

Table 1

Emotion Classes For Logging of Native Forests

Emotion	All occurred two or three times.	
Annoyed	Happy	Upset
Sympathy	Fear	Disappointed
Depressed	Uncomfortable	Worried
Controlled	Freedom	Anxiety
Encouraged	Guilty	Horrified
Uncertain	Sense of Loss	Distanced
Manipulated	Hurt	Enraged
Shame	Indignant	Unhappy
Outraged	Uneasy	

All occurred once

regretful	disenchanted	serious
endangered	comforted	violated
crazy	distressed	offended
despair	determined	undecided
grateful	enthusiastic	condemned
choiceless	bitter	defensive
sick	unethical	reflective
exhausted	choice	troubled
sensitive	stubborn	reasonable
passionate	justified	motivated
disturbed	hostile	cynical
foolish	grieved	strong
irritated	cross	unpleasant
detached	ambivalent	okay
distress	initiative	torn
definite	bored	

Total 84

Table 2

Emotion Classes For Restriction of Vehicle Emmissions

Emotion	All occurred two or three times.	
Concerned	Neutral	Satisfied
Cautious	Confusion	Assertive
Mad	Strong	Enthusiastic
All occurred once		
alienated	injustice	compassion
dubious	doubtful	openness
uninformed	ignorant	calm
disturbed	hostile	cynical
cynical	exasperated	uninvolved
detached	defensive	content
useful	discouraged	optimistic
relieved	unfair	overwhelmed
hesitant	indifferent	irritated
unemotional	scared	infringement
bitter	hopeful	relaxed
contempt	discriminated	bias
crazy	distressed	offended
despair	determined	undecided
grateful	condemned	choiceless
bitter	defensive	sick
exhausted	choice	troubled
sensitive	stubborn	reasonable
passionate	justified	motivated
Total	88	

Table 3

Emotion Classes For Urban Development

Emotion	All occurred two or three times.	
Sympathy	Cheated	Grateful
Lucky	Glad	Ripped Off
Peaceful	Positive	
All occurred once		
injustice	mean	disbelief
hopeless	useful	good
sympathetic	thoughtful	aggravated
cautious	bewildered	compelled
obligated	uncomfortable	depressed
acceptance	aggravated	used
thankful	upset	pensive
unheard	motivated	encouraged
outraged	pleased	overwhelmed
interested	suspicious	guilty
hopeful	protective	ineffective
shame	calm	righteous
matter of fact	responsible	cold
strong	joy	sorry
supportive	reassured	cheated
empathy	confident	resentful
Total	91	

Table 7

Average Attitude Score and Proportion of Positive and Negative Emotions and Beliefs

Issue	Mean Attitude	Emotion (%)			Belief (%)	
		-	-/+	+	-	+
Logging Native Forests	-2.04	89	11.00	0.00	70	30
Urban Development	-.86	84	.04	.05	60	40
Restriction of Vehicle Emissions	1.66	51	28.80	19.60	40	60